THE MEDICAL JOURNAL OF AUSTRALIA.

Vol. II.—2ND YEAR. SYDNEY, NOVEMBER 13, 1915. No. 20.

THE WAR AND PUBLIC HEALTH.[1]

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The subject of this lecture is clearly a very comprehensive one. It implies some kind of correlation between the concerted activity of a community towards the preservation of its common health on the one hand, and a unanimous national impulse toward the destruction of another community. This constant antagonism of ideas, preservation and destruction, makes it difficult to mould this subject into a complete unit, and renders it necessary to regard each portion of the title as a separate stirrup, by either of which one may mount into the saddle, and on each of which during the ride the pressure is alternately made.

Public Health and War cannot be said to have much in common.

War is the attempt by one body of men to destroy or disable an opposing body of men. Such an attempt is rarely or never completely successful, for men and women are not so easily destroyed. But the means by which this attempt is made are worth a little consideration. What are these means? Both on land and on sea the essential arm is an explosive, solid or liquid as may be, a complex chemical substance, discovered after prolonged mental effort, manufactured at great cost and with the expenditure of human effort, to what end? To disintegrate in a flash into elementary gases which diffuse invisibly and are lost. The labour of Earth's natural forces for centuries, the toil of man's mind and body for years, painfully built up in order to disperse suddenly into primary elements and to be lost economically for all time. And in this process what a mass and a variety of destruction is wrought. Guns, rifles, shells, torpedoes, aeroplanes, motor-cars, all constructed with fine scientific accuracy, representing many years of careful, precise and laborious experiment, used for a few short days, hours or minutes, and then blown to fragments, smashed to splinters, or abandoned to the weather. Thousands of men dig and dig with a ferocity that is undreamed of in civil life, and expend a sufficient number of foot-pounds of energy to complete a huge undertaking in civil engineering; only to have it blown away in a moment by a mine or in an hour by bombardment. Men work for a year, and a nation spends a million pounds to build a ship of war. This floating monument to a vast mass of energy is sent to the bottom of the sea in a matter of seconds.

So much for the material. Of the human waste one does not care to think. We do not know the amount of disablement and the loss of potential energy even to our own nation. We are only just now beginning to realize it.

War is destruction and dissipation of both matter and energy. We are assured at the University that neither matter or energy can be lost. This is academic. We know very well that a very considerable amount of both matter and energy are lost to this generation, and we are much more intimately concerned with what happens to this generation than with posterity. A sharp contrast to the picture of destruction just outlined is offered by that special branch of practical science which is known as Public Health. This is a study of all factors which may prejudice the health of the community, and of the methods by which such factors may be removed. This science, like all others, has exhibited a rapid evolution. It began merely in the collection of a few scattered facts concerning the pollution of water by human excreta and a vague association of ideas between malaria and marshes. It has extended rapidly, until it now concerns itself with the possible effect upon human health of every factor in the human environment. The purity of air, soil, and water in everyday life, the purity of food under all conditions, the most hygienic conditions of education in schools, the proper regulation of the particular environment in certain trades and occupations, the hours of labour, and all such things have been, and are being carefully studied, to say nothing of the very extensive study of infectious diseases or of the part played by animals and insects in the diffusion of disease.

In short, the study of public health has as its province the whole environment of man on a large scale and in detail, and its effect upon his life and health. Moreover, the new science of eugenics, which is closely allied, is concerning itself with the individual himself, and while the hygienist is striving to improve the environment, the eugenist is seeking indications of the correct method of improving the human stock.

Together, these must result in a vast improvement in health, and therefore in potential national energy, and must effect the saving of many lives.

But while war can produce 25,000 Australian casualties and 5,000 deaths in six months, it is very doubtful whether the present methods of interpreting known facts of hygiene can produce a like saving in as many years.

So much for the contrast between the two phenomena under consideration, and this contrast has been depicted with some deliberation, in order to emphasize the constructive application of the knowledge the last twelve months has brought us.

While these two national pursuits have little in common, yet when brought into juxtaposition, there is naturally an influence by each on the other, and it may be of some advantage to pass from generali-

[1] Being a Popular Lecture delivered at Masonic Hall, Melbourne, on October 6, 1915.

ties to the consideration of these mutual influences in sufficient detail to obtain a general idea of the situation.

What effect has the war had upon the public health, or, *per contra*, what effect has public health had upon the war? The latter question is obviously an abstract proposition, and would be more conveniently stated, "What effect has the application of practical knowledge of sanitation and hygiene had upon the war?"

It is possible to answer this question, and, happily, to answer it in a way which is entirely satisfactory. In the first place, there is the remote influence, for England has shown to all nations the way to obtain sanitary conditions in daily life. England began the study of sanitation, and has been in advance of other nations both in its search for this kind of knowledge and in its application of that knowledge. It is not unreasonable to say that the steady improvement of the sanitary conditions of England has played its part in the production of the physical fitness of Britain's standing and volunteer armies. The constant inculcation of clean habits and general clean living, moreover, must surely have played some part in the production of that clean mindedness, which we pride ourselves is a characteristic of Britain's armies.

But it is in the actual details of the present campaign that the benefits of this close study of public health conditions have been apparent. It has been possible to bring together a vast army of one, two, or three million men, and maintain them under conditions of exceptional aggregation, and in an environment quite unfamiliar to them, without any special occurrence of epidemic disease. Typhoid fever, diarrhœa and enteritis, dysentery and cholera have been in the past inevitable associates with such conditions of military aggregation, but these have been unknown as epidemics in the military camps of the last year in England. Cases have occurred, certainly, but the scourges of the past, running uncontrolled throughout the camps, belong to the past. These intestinal diseases are the index of sanitation, and their absence is sufficient indication of the triumph of applied knowledge. In this one direction alone public health has played its part in maintaining the number of effectives. What is true of England is true also of the fighting zone. There the attention to sanitation is unceasing, and the conditions are made as perfect as is consistent with military requirements. Travelling laboratories are constantly at work checking the work in the field, investigating sources of water supply, the possible carrier of infectious disease, and assisting in all ways in which bacteriological knowledge has been found to be useful.

When one reflects upon the numerous geographical spheres of military operations, and considers what has been done to prevent disease, and how little disease has actually occurred, then one is led to a realization of how completely the science of public health has justified itself throughout the supreme test. It would have been interesting to have been able to record the results obtained, but the difficulty is that there have been no results other than the purely negative. All that can be done is to record a catalogue of various spheres of operations where typhoid and cholera have not appeared.

As a contrast to this, the conditions in other countries at other times may be recorded. Austria and Turkey both have experienced, and doubtless are still experiencing, more or less widespread outbreaks of cholera. Servia has passed through a murderous epidemic of typhus, with an indefinite number of deaths (one estimate placed the deaths at 80,000 as a minimum). But these are countries where public health as a science has received very little attention.

What is true of the value of public health in preventing infectious diseases is true in other directions. The system of control of the purity of the food supplies has resulted in a supply to the armies of food of a high standard of purity and quality. Disinfection and bathing stations have been equipped, and in many other directions the knowledge possessed is a result of the study of public health, which has placed the British fighting forces in a more satisfactory position than they have been in any previous war.

But these effects of public health, while important enough, are not more than a side issue in the war, and sink into insignificance beside such matters as the supply of munitions. So long as war lasts destruction will maintain its ascendancy over conservation, and the initiative will never pass to the side of conservation. The two are obviously incompatible. Before leaving this phase of the effects of public health on the war, however, there is one point upon which attention may be focussed with advantage. The difference in the amount of knowledge possessed in 1900 and in 1914 is not nearly so great as the difference in practice at the time of the South African War and that in operation during the present war. The work of the Royal Army Medical Corps has improved vastly during these fourteen years, but it has improved not so much by reason of increased knowledge as by greatly improved practice, due to keen and vigorous organization.

Let us turn now to a consideration of the effects of war on the public health. Throughout history war and pestilence have been invariably and inevitably associated; bosom companions, stalking through the afflicted countries, bent on evil. This partnership of destruction has been dissolved in all civilized countries. Nations have been able to improve their knowledge and rationalize their practice sufficiently to prevent the ravages of epidemic disease. It may not be too much to hope that nations may become educated to a point at which war itself may become impossible.

The civilized races have not suffered from epidemic diseases during this war, but that epidemics are still possible in the absence of modern sanitation is evidenced by the experience of Austria, Turkey and Servia just referred to, and in an equally striking way by the experiences of the Balkan States in the late Balkan War.

The danger, however, is not yet over. The troops are operating in various centres of disease. Our

own Australian forces are still fighting in Turkey, which has an evil reputation as being an endemic centre of plague, cholera, small-pox and typhus, without referring to a number of Oriental diseases of a more or less infective type. The movements of large bodies of troops consequent upon the cessation of hostilities, together with the confusion which is almost inevitable at that time, offer a very large, distinct menace to all countries. Without doubt, the resources of the larger nations are sufficient to prevent any great spread, but still the danger of the introduction of disease is a real one. The contingent returning from China after the Boxer riots introduced small-pox into Sydney; the troops returning from South Africa introduced bilharzia, a disease hitherto unknown here, which, fortunately, has failed to spread to a marked extent.

In spite of all vigilance, it will not be surprising if some epidemic disease is introduced by our returning soldiers when they commence to return in large numbers at the end of the war. One of the deplorable results of this European war is the check it gives to a very beneficial movement amongst the nations. For thirty years the various civilized races had been attempting to find a basis for harmonious co-operation in the direction of international uniformity in health administration, and the 1912 conference marked almost the completion of this work, as all the important nations agreed to a common working basis in questions of international hygiene. Much of the progress made will now be lost, and this search for a basis of uniform action will have to commence all over again.

The war has no appreciable effect upon the food supplies of the nations with which we are associated. War may, however, under certain conditions, produce serious shortage of foodstuffs of one or other kind, with a concomitant effect upon the general health. There seems to be some indication of such a result in a minor degree in Germany, as the German medical journals report dietetic disturbances as a result of the substitution of other varieties of starch for wheaten starch. In matters of detail affecting the health of the community on a large scale, the principal directions in which the effects can be immediately observed are the infectious diseases and the food supplies.

There are, however, other directions probably more important in which the public health is influenced. The loss of an appreciable proportion of young, healthy and enterprising males would appear to be likely to affect the standard of health and physique of subsequent generations very seriously. At first sight this would appear to be inevitable, but it is not at all clear that it is actually so. It is one of those subjects upon which there is not as yet sufficient evidence to justify a reasoned opinion. It is just possible that the reverse may be the actual truth, and that the general average of the national human stock is raised. The evidence is, however, not available, and judgement must be suspended for probably a generation at least, until the effect of the present war is seen in various countries.

One very definite result of the present war has been the concerted action taken by France and Russia to control the consumption of alcohol. There can be no diversity of opinion as to the economic and moral value of such a step, but there is much food for reflection in the facility with which a violent revolutionary reform may be introduced when the nation is moved by a common and profound emotion.

This stirring of a nation's soul under a common danger is one of the most wonderful effects of the war, and is, I firmly believe, destined to be one of the most profound and far-reaching effects of the war upon the public health, and this in two directions.

The common health is but the aggregate or the average, whichever you will, of the health of the individuals which make up the community. The health of the individual is very materially affected by his mental condition, and one is, I think, justified in believing that in the common danger the call to the community for concerted action, and for the exercise of their most intelligent assistance must result in a sensible improvement in the mental tone, and therefore necessarily in the general health of the community.

The experience of the French nation has been referred to by many writers during the past few months as an instance of a profound mental conversion, amounting almost to a religious reformation. A nation which passes through such an experience cannot fail to benefit by improved physical tone.

Moreover, the men who have been serving with the colours, who have lived constantly in close association with wounds and death will assuredly return to their homes with a sterner vision, with a more critical consideration of their daily life; and we may accept it as certain that these men are not going to accept the froth and bubble as being the whole of life. They will look to those who control their movements, who make the laws they have to obey, to deal with them as grown men who have found themselves.

It may be earnestly hoped that from this war are coming back to Australia a body of men who have discovered what things can be accomplished by resolute men, actuated by a common impulse, and determined to achieve any objective which is an advance on their previous position. There are many questions which Australia has to settle, and will have to settle, and not the least amongst these is the conservation of the public health. Other wars may come, and men will be needed. Men will certainly be needed, both to replace those who have sacrificed their lives or been permanently disabled, and to help us to pay in full our debt to these men. The commercial development of the country will require men, and apart from all these special considerations, we are yet far from having attained that pinnacle of perfection when we can claim to be doing all that we can for the health of the nation.

It seems to me that one of the most important effects of this war is going to be that our men are coming back to us impressed very seriously with the importance of being in earnest, and that this is going to have a very marked effect upon the devel-

opment of the nation, of which the most important phase is the conservation of public health.

One other result of the war has been the demonstration of the ability of a nation to rouse itself to a realization of a pressing common need, to organize itself rapidly as a whole, and to accomplish by a concerted effort things which would previously have seemed to be fantastic. The Germans have been doing it for years systematically, the French did it in a very remarkable way, and even that wonderful complex of contradictory phases, the British nation, has found itself, and by concentrated effort and systematic application has accomplished extraordinary results. Even in Australia the amount of highly successful work which has been accomplished is striking and highly satisfactory evidence of what can be done by concentrated effort. Here I should like to digress for a moment to record my admiration of the work which has been done successfully in Australia since the war began. The organization necessary to the training, equipment and transport of the 100,000 men to Egypt has involved an immense amount of self-sacrificing work, and has been conducted with a degree of success which there is reason to fear has been overshadowed by the criticism of the things which did go wrong, and has consequently not been sufficiently recognized.

All of this truly marvellous achievement has been found to be possible in several nations, and it has been found to be not only possible but easily practicable by concentrated effort to organize the whole intelligence and energy of a nation for a common purpose.

It would be well for us to consider seriously whether if this national co-ordination can be attained with the sole object of the destruction of life, the disorganization of matter and the dissipation of energy, it is not equally our duty to give as much attention to the possibility of successful organization for the conservation of human energy and the preservation of human life.

There is a proverbial reproach to the effect that panic is the parent of sanitation. History provides much evidence in support of this. The Health Departments in Western Australia and Queensland owed their origin in their present form to the occurrence of plague in 1900, as did the Health Departments of Tasmania and New South Wales to the occurrence of small-pox in 1903 and 1884 respectively. While the Health Departments in every State are now doing progressive work, yet every health official knows how difficult it is to push reforms through the tortuous channels, which all progressive movements have to follow under the conditions of public administration as they exist to-day. If a Health Act requires amendment, being perhaps as much as twenty-five years out of date, it is regarded as being of minor importance, and is entirely subordinated to political conditions of really less moment. It is surely not too much to hope that the day will come when any legislative measure submitted by the official public health advisers of the Government will be given precedence over all other measures, and its passage facilitated in every way until, after full discussion and necessary amendment, it becomes law as early as is convenient.

A study of the annual statistics of Australia reveal an unduly high infantile mortality. This is a matter which one might legitimately think would demand the earnest attention of Governments. It would surely be a wise national policy to institute without any delay a close enquiry into the reasons of such unnecessary mortality. Is it due to hereditary infections, to improper feeding, to ignorant nursing? Whatever be the cause, it might well be investigated, and any steps necessary to reduce it, be put into operation at once. Is better administration of our pure food legislation required? Is control of the standard of nursing needed? If so, then let us by all means see that these things are done at once. Under this improved national spirit, which I hope and believe we are going to have, and which we certainly ought to have, this would be the attitude of those responsible.

There has just been concluded an analysis of the medical certificates issued in respect of all claimants for Invalid Pensions under the Commonwealth Pensions Act. This analysis reveals that 11% of the total certificates gave the cause of invalidity as phthisis. With respect to persons under 40 years of age, 24% of the certificates stated the cause of invalidity to be some form of tuberculosis. Congenital imbecility accounted for 14% of the total cases over 40 years of age, and if the combined group of affections of the nervous system, including hemiplegia, degenerations of the spinal cord, insanity and epilepsy be considered, these account for 19% of the total number of persons under 40 years of age.

One-fifth of the cases under 40 years are thus seen to be due to definite breakdown of the nervous system. This clearly should not be. The causes of such breakdowns are not entirely clear, and it is not sufficient to say that such persons inherit unstable nervous organizations. An endeavour to ascertain the reasons for such instability is obviously desirable. It is known that some part, possibly a large part, of this instability is the direct result of either inherited or acquired syphilis, and the matter must be left at that until further information is available. But it would appear to be incontestable that the interests of the community call urgently for further information. These diseases, tuberculosis, syphilis and gonorrhœa, therefore, play a very important part in the production of the total human permanent incapacity in the Commonwealth, and are imposing upon the community a quite serious financial burden. This at once provokes the question, "Is there no way of reducing this burden of suffering and misery, and cannot some means of attaining preservation of this amount of human health and a conservation of this amount of human energy be discovered?"

These three diseases are productive of so much economic loss to the community that they merit very serious attention on this ground alone. The human sacrifice is in itself enough to justify action, and both considerations together should be sufficient to

force the nation to decide whether it will continue to trifle with these questions or whether it will set itself vigorously to ascertain some basic facts upon which remedial measures may be built up. Tuberculosis has, during the last five years, killed in Australia about 18,000 persons, and has been responsible for reducing a total of 3,300 persons to such a condition that they are permanently incapable of earning their own livelihood. Of syphilis and gonorrhœa we have no such accurate information. The reasons for this are obvious. But we have at least this fact, that of all invalid pensions paid, 16% were paid on account of degeneration of the spinal cord, insanity, epilepsy, congenital imbecility, congenital malformations, and syphilis, a group in which syphilis, either inherited or acquired, plays some part. We have also statements made by responsible authorities well known to us in Australia, to the effect that syphilis is very much more widely spread in the community than is generally realized. In an investigation which was very carefully and scientifically controlled, it was ascertained that during a period of twelve months (June, 1910, to May, 1911), 1,900 cases of syphilis were verified as existing within the metropolitan area of Melbourne.

There may have been more than this; it is probable that there were, but it would not be wise, nor do I propose, to endeavour to startle you with any emphatic statements as to the distribution of this disease.

No one can, however, doubt that here is a subject for careful, dispassionate investigation, and for such disciplinary control as shall be indicated as necessary by the results of such investigation.

So with all other infectious diseases. We do not know many of the factors assisting in their spread; our system of notification and control is in itself so defective that we cannot even say we know accurately how many cases do occur, and certainly we are far short of any complete and rapidly effective system of control, especially in the outlying districts.

Our public health system has not yet begun to concern itself seriously with diseases other than those which are regarded as transmissible. Rheumatism, degeneration of the blood vessels, cancer, and a number of others produce a large amount of ill-health and a considerable number of deaths. These could be scientifically investigated with profit, and any necessary legislation based on the results obtained.

While this search for causes was proceeding, the questions of successful treatment could be taken up. We can find no reason to be proud of the haphazard hospital system which has grown up in Australia. That our hospitals should be dependent upon promiscuous charitable contributions, given half-willingly upon a special gala-day, is not gratifying, and is even humiliating. It should be possible to devise a system which should be dominated throughout by the idea that these hospital patients are the human capital of the nation, and that hospitals are national instruments for the safeguarding of this capital.

I have but vaguely sketched an outline with the intention of focussing your attention upon the idea of a co-ordinated scheme for the preservation of the national health, a scheme in which there will be careful scientific investigation of all phenomena, in which the investigation in the field will go hand in hand with investigation in the laboratory and which will be productive of sound and accurate data upon which administrative practice will be based. Such a scheme would involve administrative machinery sufficiently developed to ensure successful practical application of any increased knowledge, and would necessarily create in the minds of the Governments a feeling of such complete confidence in their advisers that any necessary legislation would be rapidly brought into effect.

There is no place in such a paper as this for any discussion of the form which such a scheme should take; nothing more than the presentation of a vague, astral body is appropriate.

If however, the nation realizes fully the capacity for national organization which this war has revealed, if it applies that capacity to the production of a sound national policy of public health, with all available resources properly co-ordinated, and if the nation realizes that it can and should regard the care of its own health as one of its first duties, then this war will have produced a considerable amount of material good to this nation.

THE WASSERMANN REACTION AS AN AID TO DIAGNOSIS.[1]

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When I decided on the Wassermann reaction as the subject of this paper, my object was to confine my remarks as much as possible to a discussion of the value of the test as a diagnostic agent. I came to the conclusion, however, that a few remarks on the phenomena concerned in the test would not be irrelevant, because it is only by a knowledge of these phenomena that certain results in connexion with the reaction can be appreciated.

Though the value of the test as an aid in diagnosis has been the subject of much criticism during the seven years that have elapsed since Wassermann elaborated his reaction, the majority of observers agree that not only does its discovery mark one of the most important advances in modern medicine, but also that in this test we have a diagnostic aid of undoubted value.

It is only necessary to consider the far-reaching effects of syphilis, the various conditions which may arise as a result of infection with the *Spirochaeta pallida*, and the ease with which primary and secondary manifestations may be overlooked, to appreciate of what value a test like this is.

The discovery by Schaudinn in 1905 of the *Spirochaeta pallida* as the causative agent in syphilis, and the demonstration by Noguchi and others of the presence of the spirochaete, not only in primary and secondary lesions, but also in gummata, and even in the brain in parasyphilitic affections at once raised

[1] Being a Communication read before a meeting of the Western Australian Branch of the British Medical Association.

our knowledge of syphilis from a condition of vague uncertainty to the sound basis on which it now rests. The ætiological factor in the disease being known, a further aid to diagnosis was at hand, *viz.*, the demonstration of the spirochaete in suspected lesions. Unfortunately, the detection of the spirochaete in the later lesions of syphilis is from a clinical standpoint practically impossible, and it is these later cases, especially those with a vague and uncertain history of earlier symptoms, that the need of some other means of arriving at a diagnosis is felt.

Wassermann's serum test is based on the phenomenon of the fixation or deviation of the complement, more commonly known as the Bordet-Gengou reaction. Included in this reaction are also the phenomena of hæmolysis and bacteriolysis. Briefly, these are as follows:—

If an animal, *e.g.*, a rabbit, be inoculated with several doses of another animal's red corpuscles, *e.g.*, those of a sheep, the rabbit's serum, when added to some sheep's corpuscles, will so act on them that their hæmoglobin is set free and goes into solution. This is known as hæmolysis, and the rabbit is said to be sensitized to, and its serum hæmolytic for, the sheep's red cells. Heating the rabbit's serum, however, will destroy its power of causing hæmolysis, *i.e.*, some body which was present in the serum and was necessary for the production of hæmolysis has been destroyed.

This body is known as complement. It is present in all fresh sera. A serum deprived of its complement is said to be inactivated.

Hæmolysis, however, is not due to the presence of complement alone in hæmolytic serum, otherwise any fresh serum would cause hæmolysis when added to the sheep's corpuscles, which does not occur. We can, however, restore the hæmolytic power of the inactivated rabbit's serum by adding some fresh serum from another animal, which contains complement. Guinea-pig's serum is the serum usually chosen when complement is required, because it is rich in complement.

If fresh guinea-pig's serum be added to the inactivated hæmolytic serum, hæmolysis will occur again when this mixture is added to the sheep's corpuscles. Obviously then, two substances are necessary to bring about the phenomenon of hæmolysis. One is the complement which is destroyed by heat, *i.e.*, thermolabile, the other is not destroyed by heat, *i.e.*, themostable, and is produced by sensitizing or immunizing an animal. This substance is known as amboceptor, antibody, or immune body.

The action of the amboceptor in the production of hæmolysis seems to be to prepare the red cells for the attack of the complement; neither is able to produce the condition alone.

An animal can be sensitized with various organisms in the same way, and specific antibodies produced in the blood of the animal for the organism used. The serum of such a sensitized animal, when added to an emulsion of the organisms used, will produce a condition similar to that which occurs when red corpuscles are used, that is to say, the bacteria become dissolved. This is known as bacteriolysis.

The name antigen has been given to those substances which, when inoculated, give rise in the blood to antibodies or amboceptos, and each antigen produces a specific amboceptor for itself. An analagous condition occurs when a person becomes infected with some organism, *e.g.*, the typhoid bacillus or cholera bacillus.

In syphilis, the *Spirochaeta pallida* is the antigen, and it gives rise to specific antibodies or amboceptor in the blood of the infected person.

It is on the presence of these antibodies in the blood that Bordet and Gengou's and Wassermann's reactions were supposed to depend.

Bordet and Gengou's experiments were as follows: The serum of a patient suffering from cholera was taken and heated to 56° C. to destroy the complement. The inactivated serum was then mixed with an emulsion of cholera bacilli and some fresh guinea-pig's serum containing complement. The mixture was then incubated at 37° C. for a time, after which some sheep's corpuscles, together with the corresponding hæmolytic serum, previously inactivated, were added. They found that no hæmolysis occurred if the patient were suffering from cholera. The reason is obvious. The amboceptor or antibody in the cholera patient's serum acted on the cholera bacilli, causing the aborption of all the complement, consequently, no complement was left to combine with the red cells and their amboceptor, and no hæmolysis occurred. Had a normal person's serum been used, which contains no specific amboceptor for the cholera bacilli, then the complement would not have combined with the cholera bacilli, but would have been free to combine with the red cells and their amboceptor, and hæmolysis would have resulted. This is known as the fixation or deviation of the complement. Wassermann based his reaction on this phenomenon, but whereas Bordet and Gengou have used an emulsion of cholera bacilli as antigen in their tests, Wassermann, being unable to procure an emulsion of the *Spirochaeta pallida*, since it had not been isolated or cultured at that time, used an extract of a syphilitic fœtus's liver. The liver of a syphilitic fœtus contains a large number of spirochaetes. It was soon discovered, however, that the binding of the complement, which occurred in syphilitic cases, was not due to the action of the spirochaetes in the extract of syphilitic fœtus's liver. Similar results were obtained if an extract of a normal person's liver were used. Further experiments showed that the substance which caused the complement to become fixed was really a lipoidal substance of the nature of a lecithin. It was demonstrated that an extract of any body organ, containing this lecithin, could be used as antigen in carrying out the reaction.

In the laboratory, I always use an alcoholic extract of guinea-pig's heart, and find it works very satisfactorily. The recent experiments of Walker and Swift point to the fact that the addition of cholesterin to an alcoholic heart extract greatly enhances its antigenic properties, and that such a cholesterin heart extract is superior to an alcoholic extract of syphilitic liver. It has further been shown that both human and guinea-pig heart extracts are

superior to beef heart extract when the same amount of cholesterin is added to each. It is thus seen that Wassermann's reaction is not a direct application of the Bordet-Gengou reaction, since it does not depend on the absorption of complement by organisms or their specific immune bodies or amboceptors. The result of investigations into the theoretical basis underlying the reaction has led to the conclusion that it depends on the interaction between lipoid substances in the extracts, and altered albumins in the syphilitic serum. The altered albumins are said to be the result of the production of antibodies due to infection with spirochaetes. It is obvious, therefore, that we cannot expect to obtain a positive reaction in cases in which antibodies have not been formed. If we consider the circumstances under which a person, though infected with the spirochaete and perhaps showing symptoms of the infection, may not have antibodies present in his serum, we can explain why some cases persistently return a negative reaction, in spite of their undoubted syphilitic nature.

Unfortunately, we cannot explain why this is so in all cases. This fact detracts considerably from the value of the reaction in regard to its negative result. There are, however, some conditions under which we can understand a negative result occurring, even though the person be syphilitic.

In the very early stages of infection, *i.e.*, in the early primary stage, sufficient antibodies may not be present in the blood. Sufficient time for their production may not have elapsed. In this case either a complete negative or a partially positive result may occur. A partially positive reaction under these circumstances, is of great value, but a negative result, on the other hand, is of no practical value, and a further test should always be carried out at a later date to confirm or refute the negative finding.

A complete positive result is only obtained in the primary stage in 40% to 50% of cases.

Again, in many intractable cases, where the immunity of the person appears to be so low that his body is incapable of responding to the infection, and no antibodies are thrown out into his serum, a negative result must be expected. Syphilitic disease may be quite manifest, and yet the serum, when tested, persistently returns a negative result.

Failure to respond to treatment may then often foreshadow a negative Wassermann, and *vice versa*.

I wish to add a few words with regard to the effects of treatment and negative results. After a patient has undergone a vigorous course of treatment, with the result that the outward manifestations of the disease disappear, a negative reaction to the Wassermann test will be obtained if his serum is tested at the time when the treatment is stopped. This negative result, without further confirmation, must in no way be taken as an indication that the patient is cured.

A negative Wassermann reaction may be obtained after a lengthy treatment with mercury, but when the treatment is interrupted, a recrudescence of symptoms may occur.

To be of any value in cases of this kind, several tests should be made, extending over a period of twelve or eighteen months, and on each occasion a quantitative test should be performed.

If on the cessation of treatment a negative Wassermann reaction is obtained and no further manifestations of the disease are present, the test should be repeated after six, twelve and eighteen months. Should the test be negative on each of these occasions, it may be assumed with a fair degree of confidence that the patient is cured. At the present time we are not in a position to say definitely that such a case is cured, because the serum test has only been known for seven years, whereas cases have occurred in which the condition has remained latent for thirty years and has then broken out again.

Salvarsan is capable of changing a positive result into a negative much more quickly than mercury. I have, however, seen one case at least where the negative result after "606" was followed in three or four months by a complete positive reaction. In this case tertiary symptoms appeared on the leg shortly after. This illustrates the necessity of confirming a negative result by subsequent tests when the test has previously been positive.

I wish to turn your attention to the influence of treatment on the reaction in persons with active lesions. It often happens that a patient is suspected of being syphilitic, and is accordingly put under treatment. Later on some doubt may arise as to the real nature of the affection, and a Wassermann test is applied. Under these circumstances, if the treatment has been energetic, it is not at all uncommon to get either a negative or an incomplete positive result.

An incomplete positive result in these cases is decidedly of value, but a negative result is by no means conclusive. A quantitative test should always be performed under these conditions; in most instances some trace of a positive reply will be obtained from the test.

Though several observers assert that treatment has no effect in changing a positive into a negative reaction, I have on several occasions found that vigorous treatment, especially with "606," will bring this about.

Whether a negative result after "606" is a definite indication that the condition is cured, is hard to say, because of the short time this drug has been in use. In the case previously quoted by me a negative result after "606" was followed in a few months by a return of symptoms, and the serum test was again positive.

Lastly, a negative result sometimes occurs in obviously syphilitic cases, in which no treatment has been carried out. In these cases the patients may respond to treatment. They cannot be included under the heading of intractable cases. The negative result to the Wassermann test is inexplicable. Whatever may be the reason of it, it certainly detracts considerably from the value of the test, as regards its negative result.

A positive result, on the other hand, is practically unassailable. Shortly after Wassermann had introduced his test, it was asserted that a positive reaction had been obtained in several conditions other than syphilis. Among the various causes which were

assigned as bringing about a positive result were scarlet fever, carcinoma, diabetes, lead poisoning and severe septic conditions.

It is, however, very hard to prove conclusively that patients suffering from these affections have not at one time or another been infected with the spirochaeta, and certainly the published records of positive results in non-syphilitic cases are rapidly diminishing.

It is generally admitted now that a positive result is conclusive of a syphilitic infection. McDonagh, in quoting the results of 5,000 cases, stated that, taking all stages of the disease together, 85% were positive, and that a positive result was never obtained when syphilis could undoubtedly be excluded.

A positive result is not only of use in telling us whether a suspicious rash or some similar condition is syphilitic or not. It also affords a means of determining whether a process is the result of an early syphilitic infection, *e.g.*, the positive results obtained in locomotor ataxia and general paralysis, in aneurysm, and in general arterio-sclerosis.

As an aid in differential diagnosis, the value of the test is seen in numerous instances, *e.g.*, in differentiating between non-syphilitic ulcers, especially the varicose variety in women, and syphilitic ulcers, It is often difficult to obtain a history of syphilis. Indeed, the history given by female patients is usually unreliable. A positive Wassermann reaction settles the question.

The test is also of great value in differentiating between syphilitic periostitis, or gummata of bones, and new growths, especially sarcoma. It is often extremely difficult to decide definitely whether a swelling in the region of a bone is due to a new growth or to a syphilitic process, especially when a history of syphilitic infection is not obtainable. As the treatment in the two conditions is so vastly different, a Wassermann test should never be neglected in cases of this kind.

Difficulty may be experienced in diagnosing between various pathological conditions of the testis, including gummata, tubercle and new growth. In abdominal tumours of the kidney, liver or other organ, it is extremely difficult to exclude syphilis without applying the Wassermann test. In one case which came under my notice a tumour existed in the region of the kidney; it was diagnosed as a sarcoma. The patient was submitted to operation; no Wassermann test had been performed, and the kidney was removed. The microscopical examination eventually showed the condition to be a gumma of the kidney. Had a Wassermann test been carried out, the patient would in all probability have been spared the risk of such a severe operation.

In various conditions affecting the mouth, in which carcinoma had been suspected, *e.g.*, in ulceration of the tongue and palate, the Wassermann test often reveals syphilis as the real cause.

An interesting case occurred quite recently in my own experience. A patient who had a suspicious ulcer of the roof of the mouth was sent to me to have a Wassermann test performed. A plate had been worn, and was a source of irritation; the patient denied any possibility of syphilis. Everything pointed to a commencing epithelioma, except that the Wassermann reaction was completely positive. The condition eventually cleared up under anti-syphilitic treatment. It is well to remember, however, in this connexion that syphilis appears to play a most important part in the ætiology of epithelioma of the mouth. It was therefore necessary that all the clinical aspects of the case should be taken into consideration before an opinion as to the nature of the condition is expressed.

Mention has already been made of the positive results obtained in locomotor ataxy and general paralysis. In the latter condition, a positive Wassermann reaction is obtained in 100% of all cases. In the former the percentage of positive reactions is from 90 to 100. The relation of these conditions to syphilis has thus been confirmed, and the test also provides a valuable means of differentiating between these conditions and other obscure nervous diseases.

In cases of repeated abortion, a Wassermann reaction will frequently point to a syphilitic taint as the cause of the condition. It must be remembered, however, in this respect, that the husband is often the offending party, and a serum test should be carried out in his case, should the test prove negative in the case of the wife. While speaking of the value of the test in relation to this condition, I would also like to mention an interesting point about Colles' law of a syphilitic infant not infecting its healthy mother. Knopfelmacher and Lehndorff found that the serum of 78% of all healthy looking mothers who had born syphilitic children, gave a positive reaction years after the birth, and that most probably these women were not immune, as Colles suggested, but were really suffering from syphilis in a latent form.

As a further aid in diagnosis, the benefit of the test is seen in differentiating between hereditary syphilis and tubercular affections.

Lastly, in the diagnosis of syphilitic affections of the eye and in differentiating between these and tubercular or rheumatic conditions, we have another example of the utility of the reaction.

Leber, in dealing with the diagnosis of eye disease, found that a positive result was obtained in 83% of the cases of parenchymatous keratitis, in 33.3% of the cases of iritis, and in 28% of the cases of choroiditis and retinitis. The test has not only been of use in diagnosing syphilitic conditions of the eye, but also has taught us what a large part syphilis plays in eye affections.

We thus see that the test can be of great value in a large variety of cases. Its discovery, together with that of the *Spirochaeta pallida*, opened up a new era in the clinical study, diagnosis and treatment of syphilis. It is universally recognized now that a positive result is practically indisputable, and though the negative result is not always so reliable, yet when we consider the clinical history of the cases and the relation of antibodies to the test, a great many negative results can be accounted for.

Its use is not limited to diagnosing whether a chancre or rash is syphilitic or not, but as an aid in differential diagnosis, it forms an addition to the

diagnostic armament of the highest value, especially in those cases in which a syphilitic history is denied by the patient. One great truth the test has taught me is never to believe a patient who denies syphilis until the Wassermann reaction has confirmed his statement.

Reports of Cases.

AXILLARY ARTERIO-VENOUS ANEURYSM. (aneurysmal varix).

By **T. A. Wright, M.B., B.S. (Melb.),**
House Surgeon Melbourne Hospital.

The patient, male, aet. 35 years, a sergeant in the Australian Expeditionary Forces, was wounded in the right upper arm by a bullet.

The scar of the wound at entrance was seen at the angle formed by the anterior axillary fold, and the arm, and the main exit wound was at the angle of junction of the posterior fold of the axilla and the arm.

On examination it was found that the muscles of the right upper arm were strong. There was no marked wasting of the forearm muscles. In the hand the interossei were not markedly wasted, but the bulk of the muscle between the right thumb and forefinger was much less than that of the corresponding muscle of the left.

The right hand felt cold, and the skin was somewhat moist and atrophic. Neuralgic pain was complained of, except when he wore a warm glove.

When shot he thought at first that he had been struck in the right elbow. The wound bled profusely at the time. Later there was numbness, with a feeling of pins and needles along the ulnar border of the right hand. The loss of sensation improved after six weeks, and at the time of examination, *i.e.*, about four months after the injury, no gross impairment to light touch could be detected. A dead feeling was produced by pinpricks along the ulnar border of the hand. The hand-grip was very weak. Flexion movements at the proximal interphalangeal joints could be carried out, but at the distal interphalangeal joints of all fingers and thumb of right hand active flexion was not possible. The joints were clear. The deep flexor muscles of the hand, supplied by the median nerve, were also involved. Extension movement at the metacarpo-phalangeal joints of the right index and middle fingers was good, but very poor of the ring and little fingers.

A small swelling was felt in the axilla at the distal part of the right axillary artery. A soft, purring thrill was detected.

The radial pulse at the wrist was of moderately good force and regular; the rate was 76; the volume was fair, and was equal to the radial pulse of the other wrist. There was no distension or pulsation in the peripheral veins of the right upper limb. No abnormal sign in connexion with the subclavian artery was detected.

A partial reaction of degeneration of the muscles supplied by the right ulnar nerve was elicited.

Mr. Basil Kilvington, under whose care the patient was admitted to the Melbourne Hospital, made an incision along the course of the third part of the right axillary artery, and exposed the vessels and nerves. About an inch of the axillary artery, at the level of the anterior axillary fold, was dilated into a small, oval, thin-walled aneurysm; a soft, purring thrill was felt on palpation. The axillary vein was also dilated at this situation. There was definite pulsation, which followed the respiratory rhythm, and was not synchronous with the pulsation of the artery. The internal cutaneous and lesser internal cutaneous nerves were not in contact with the aneurysm, but the ulnar nerve on the inner, and the median nerve on the anterior, aspect were adherent to it. The nerves were separated by blunt dissection and carefully retracted. An aneurysm needle, armed with silk ligatures, was passed under the artery, and the vessel was tied proximally and distally to the aneurysm. The dilated portion of the vein was adherent to the aneurysmal sac.

The sac was then opened by a small incision; dark blood welled out, and the vein collapsed. The blood continued to escape. It was then found that the condition was an aneurysmal varix.

The incision in the sac was closed by clamping the edges with artery forceps, while the sac was obliterated by oversewing with fine silk, so as to enfold the sac walls. The bleeding was thus stopped. The wound was then sutured, the fascial layers with continuous fine catgut, and the skin with fine silk. The arm was swathed in cotton wool, and lightly bandaged, and kept slightly elevated on a pillow.

On the following day the fingers were warm and pink, and there was a fairly rapid capillary blood return after pressure on the finger tips. The condition of the hand is steadily improving. The stitches were removed on the tenth day, and the patient states that the right hand feels more like normal. Sensation is now equal in all parts of the hand; the neuralgic pain has disappeared, and he is now able to use his right hand to shave with.

The points of interest in this case are:—(1) the absence of any peripheral sign of an arterio-venous connexion. (2) The absence of any obvious alteration in the radial pulse. (3) The partial loss of function of the nerves involved in the sac wall. (4) The marked thinning of the arterial sac wall, which might have been ruptured by a violent movement of the arm, or by constriction of the brachial artery, as in using a manometer for blood pressure; and (5) the condition started like a primary nerve injury. Evidently the arterial dilatation had not then developed, when the patient was sent from Egypt to Mr. Kilvington.

Adhesion of nerves is common in arterio-venous communications; the main symptoms were evidently due to scar tissue binding the nerve trunks to the aneurysm. The rapid disappearance of the symptoms after the freeing of the nerves proved that there was little actual damage to the nerve fibres. The position of the aneurysm rendered it improbable that the proximal part of the artery could be controlled with safety even for a short time. For this reason, and also because of the close proximity of large nerve trunks at this level an attempt to transplant a piece of vein in the place of the aneurysm sac was regarded as unjustifiable.

Reviews.

DIAGNOSIS AND DIAGNOSTIC TECHNIQUE.

The second volume of Cabot's able and interesting work[1] maintains and even enhances the reputation which the first volume brought to the gifted author.

Cabot's method is to deal with various important symptoms, by stating the general considerations which each suggests, and then illustrating each symptom by a number of short, clearly-worded clinical cases, the diagnosis being discussed and the outcome usually stated. He does not deal with methods of examination; he weighs the discoveries made by the examinations.

The author refers to the profit he has gained from a study of the "Index of Differential Diagnosis," edited by Dr. Herbert French, of London. We welcome this tribute to Dr. French's work, a work fit to take its place with Sahli's "Diagnostic Methods," and von Leube's "Special Medical Diagnosis," especially since it emanates from a foreigner.

Cabot employs the word "lymphoblastoma" as a generic term, to include lymphoma, lymphadenoma, lymphosarcoma, etc., and the reason he gives appears to us to be good. He has a happy knack of drawing a vivid and realistic picture of disease in a few lines, but at times he indulges in Yankee slang, as when he uses the term "bunch" in the place of the word "swelling."

He is not afraid of rapping the knuckles of meddlesome surgeons. He describes a case as "one of functional or neurotic trouble, greatly aggravated by hospitalization and by unnecessary surgery," and treats it by "the rather unusual operation of undoing gastro-enterostomy and at-

[1] Differential Diagnosis, by Richard C. Cabot, M.D. Vol. 2. 1915. Philadelphia and London: W. B. Saunders Co. Melbourne: James Little. 8vo., pp. 709, with 254 charts and diagrams. Price, 25s.

tempting to restore the normal course of the bowel." Elsewhere he relates how, during the course of an operation on the gall bladder, a large fibroid tumour adherent to the omentum and the intestines was seen but not disturbed, and he ends thus:—"It is to be noticed that the surgeon, by a remarkable act of self-restraint, abstained from removing the fibroid tumour. Such an example is to be emulated." The *format*, printing and binding of the book is excellent.

Albert S. Morrow, the author of a large and profusely illustrated book on diagnostic and therapeutic technique, which has reached its second edition,[2] addresses himself to the hospital interne and the general practitioner. His object is to place in the hands of the reader a description of a large number of procedures employed in the diagnosis and treatment of various affections.

The first two chapters are devoted to general and local anæsthesia. The succeeding ten chapters include accounts of certain general diagnostic and therapeutic measures, while in the last ten chapters the means employed in the diagnosis of affections of the various systems of the body are dealt with, after an introductory description of the anatomical relations of these systems.

In regard to the chapters on anæsthesia, some of the statements are not in accord with the views usually held. The author has apparently overlooked the fact that cocaine has long since been discarded for its less dangerous substitutes, since he recommends the employment of a weak solution of cocaine for this purpose, and claims that it is quite safe and efficient. He uses a 0.2% cocaine solution for anæsthetizing the anterior portion of the urethra, and a 1% solution of the posterior portion. This procedure has been condemned as dangerous by the majority of genito-urinary surgeons.

The author records his opinion that local (infiltration) anæsthesia is especially suited to the operation of inguinal hernia. He fails, however, to indicate the sites of the punctures. He infiltrates the skin and mucous membrane along the line of the proposed incision prior to the operation for circumcision, instead of infiltrating the base of the penis.

He neglects to give directions in regard to certain minor points, such as that the needle should always be inserted through an area dull to percussion in the operation of paracentesis, or that the patient should be placed in the sitting posture when Southey's tubes are used, since gravitation assists the flow under these conditions.

The chapters dealing with the upper air passage, and on the genito-urinary tract are well written on the whole, and contain practical information. There are some defects in the latter. For example, the illustration of the method of passing a filiform bougie through a tight stricture is labelled the method of passing a soft rubber catheter. Preference is usually given to solutions of mercuric chloride rather than to carbolic acid for the sterilization of ureteric and urethral catheters, when formalin vapour or boiling cannot be employed. It has been found that traces of carbolic acid are very irritating to the urethra.

The advice given that the treatment of hydrocele should be a combination of aspiration and injection of 95% of carbolic acid, and that this method is practically without danger if carried out with proper technique and care must be strongly opposed.

The author states that cryoscopy of the urine is of less value than that of the blood. It has been found that the freezing point depression of the blood varies to a very slight extent, even when the kidneys are extensively diseased.

Under the heading of obscure pelvic conditions, the statement is made that posterior vaginal section is preferable to abdominal section, since it is not dangerous, and the recovery of the patient is more rapid than when a laparotomy is performed.

Throughout the book are descriptions of obsolete instruments and technical methods, *e.g.*, White's palate retractors, Luy's segregator, Kelly's open tube cystoscope, water and air reduction of intussusception, etc., while several more or less modern instruments and methods are not referred to at all, such as the more recent forms of the sigmoidoscope, of the urethroscopes, stomach evacuators for test meals, and many others.

We are therefore forced to the conclusion that while the work contains a large amount of useful practical knowledge, its value is much restricted by the inclusion of many obsolete methods and the omission of several of the modern and useful methods.

[2] Diagnostic and Therapeutic Technique, edited by Albert S. Morrow, A.B., M.D. Second edition, thoroughly revised, 1915. Philadelphia: W. B. Saunders Co. Melbourne: James Little. 8vo., pp. 830, with 860 line drawings. Price, £1 2s. 6d.

SURGERY.

The seventh edition of Da Costa's "Modern Surgery"[3] commences with a chapter on bacteriology and concludes with a short description of skiagraphy. Between these conventional boundaries the matter is arranged in accordance with the custom of surgical text-books.

As he states in the preface, the author is held by a short tether in a book like this. He must strive to attain a happy medium between undue length and undue brevity. A large amount of information must necessarily be compressed into small space, but, in the present instance, this fault is remedied to a certain extent by the numerous references which are embodied in the text.

Da Costa's book forms one of a group of excellent surgical text-books suitable for medical students and general practitioners, though it cannot be said to be better than some others of the group. It is now generally recognized that it is impossible for one man to write an authoritative work on the science and art of surgery. No doubt, in future, even the text-books will be written by groups of men, each efficient in one of the various branches of the subject.

The publishers are to be congratulated on the appearance of the book, which is well illustrated, though a crudely coloured plate, illustrating types of acute appendicitis, is unfortunately included.

The author has included most of the more recent surgical methods in this edition. But he still describes such an obsolete procedure as segregation of urine, and devotes considerable space to a description of various set methods of amputation and ligation of arteries. These and similar errors of judgement suggest that the title "Modern Surgery" might well be amended to read "Surgery, Ancient and Modern."

[3] Modern Surgery, by J. C. Da Costa, M.D., LL.D., Seventh Edition, Revised; General and Operative. 1914. London and Philadelphia: W. B. Saunders Company. Melbourne: James Little: 8vo., pp. 1515, with 1,085 illustrations. Price, 25s.

The following regulation, prohibiting the sale of and providing for the destruction of the drugs known as "Natura Capsuled Suppositories" has been published in the *South Australia Gazette*, No. 86, which bears the date of October 5, 1915:—

> No person shall sell, or attempt to sell, keep for sale, or expose for sale, or permit or cause to be sold, kept for sale, or exposed for sale, or have in his possession, custody, or control with intent to sell or use, or permit or cause to be used the drugs known as "Natura Capsuled Suppositories," or any preparation containing alum and boric acid, or either of them, used for similar purposes as "Natura Capsuled Suppositories," under whatever name designated, and any person keeping for sale, or exposing for sale, or permitting or causing to be kept for sale, or exposed for sale, or having in his possession, custody, or control, with intent to sell or use any drugs known as "Natura Capsuled Suppositories," or any preparation containing alum and boric acid, or either of them, used for similar purposes as "Natura Capsuled Suppositories," under whatever name designated, shall, on demand of the Central Board of Health, forthwith destroy the said drugs or preparations.
>
> Penalty for Breach of Regulation.
>
> Any person who fails to do any act directed to be done, or who does any act forbidden to be done, by this regulation, shall be guilty of an offence, and be liable, upon conviction, to a penalty not exceeding fifty pounds.
>
> Application of Regulation.
>
> This regulation shall apply to the whole of the State of South Australia.

The regulation is made by virtue of the provisions of the Food and Drugs Act, 1908, and takes effect from the date of publication.

The Medical Journal of Australia.

SATURDAY, NOVEMBER 13, 1915.

Cerebro-Spinal Fever.

An important discussion on the various aspects of the cerebro-spinal meningitis question has taken place in Melbourne, and has been published at considerable length in the columns of *The Medical Journal of Australia*. In addition, various articles have appeared during the past few months dealing with the same subject. A Commission has been appointed in Melbourne to consider the question and to report on the best means of checking the spread of the disease. This Commission has already taken certain steps, but, until the report has been issued, it will be found advisable not to hamper its activity by any discussion of what has already been undertaken.

The important aspects of the disease are the ætiological, the pathological and the epidemiological. The clinical descriptions leave but little to be said. This disease has been recognized for two centuries, and many excellent records of the varieties and stages are available. In regard to diagnosis, everyone appears to be agreed that while suspicion may be aroused by symptoms such as fever, headache, vomiting, rigidity of the muscles of the neck or retraction of the head, the discovery of the *diplococcus intracellularis* of Weichselbaum in the cerebro-spinal fluid is essential. It has been questioned whether this organism is the actual cause of the disease or whether it is an invariable accompaniment of a filter-passing microbe. The suggestion that the meningococcus does not stand in any causal relation to the disease cannot be supported, since Flexner has produced irrefutable evidence to the contrary. Furthermore, the suggestions put forward as alternative explanations of the bacteriology of the condition lack experimental evidence, and are not even based on rational assumptions.

A great deal of ink has been spilled and breath wasted on the vexed question of the carriers. The truth must be faced that at present our knowledge of the epidemiology of the disease is scanty. It appears that during the course of an epidemic, and even during the intervals between epidemics, apparently healthy persons harbour the meningococcus in their fauces. Mayer and Waldmann found that 2% of the soldiers in the Munich garrison were carriers of the coccus. Other observers have found the frequency greater. Two possibilities have to be taken into consideration. The first is that these persons in whose fauces or naso-pharynges the diplococcus is present constitute a danger to all with whom they come in contact, while the second is that they are in danger themselves of becoming infected when their resistance is lowered by a previous catarrhal or inflammatory infection. Ledingham argues against this assumption. He quotes Selter, who demonstrated that one carrier is surrounded by a zone of carriers, and that this passing on of the organism forms a bridge between one epidemic and the next. Arkwright has been able to show that carriers retain the meningococcus for but a short time, and that the passage from one person to another is remarkably easy. He holds the opinion that an epidemic of cerebro-spinal meningitis occurs when carriers are numerous, and not that carriers are numerous during the course of an epidemic. The few facts which have been collected tend to show that the meningococcus, like the pneumococcus, spends a saprophytic existence in the throats and noses of healthy individuals. It passes from person to person without doing any harm under ordinary conditions, but, given some special alteration in the body of the host, an infection may occur. From the pharynx the organism probably enters the blood stream, and in this favourable pabulum takes on a vigorous growth, with the result that a septicæmic affection develops. In the next place, it appears that the meninges possess a selective affinity for the meningococcus, and in the course of its wanderings through the body, in the circulation, it finds a suitable resting place in this situation. But it is not necessary that the meninges should claim the meningococcus. It is not difficult to imagine the conditions which would admit of the development of a severe, perhaps fatal, septicæmia, and yet no localization would take place in the men-

inges. Lastly, some evidence has been adduced in support of the assumption that the symptoms are due to physico-chemical changes, induced by the meningococcus in the body fluids rather than to the chemical action of any product of the bacterium itself. The fact that there is no protection against a subsequent infection is greatly in support of this assumption.

Various opinions have been expressed in regard to treatment. Claims have been made that Flexner's serum is curative. It may be, but the evidence of the Melbourne physicians does not give strong support to the contention. The mortality of 40% during the epidemic rather indicates that a specific action of the remedies employed is wanting. Vaccines appear to be protective, but here again positive evidence is wanting. Nevertheless, the advice given of employing serum and vaccines in the treatment of the disease in all its stages should be followed in the absence of any better proposal. The application of antiseptics, either locally or through the blood, may be of value, in spite of the experience made in connexion with other bacteria. Antiseptics tend to become fixed by the proteins of the tissues, and usually do not reach bacteria nesting in crevices or niches. Moreover, the concentration of the antiseptic is diminished almost instantaneously on application to a surface in a catarrhal condition. In any case, the most that could be expected from this form of treatment would be the destruction of some of the saprophytes in the case of carriers. Eucalyptus oil as a prophylactic carries with it a pungent advertisement of its use. It tells its tale almost as forcibly as iodoform, but, fortunately for the users, not every person reeking of the oil is a candidate for meningitis. Lumbar puncture appears to have a real therapeutic value, probably in virtue of the mechanical removal of the cocci. Perhaps venesection might have a similar beneficial action in the septicæmic stages.

ENTERIC FEVER AT THE FRONT.

A few weeks ago an official statement that a large number of soldiers had returned from the Mediterranean and Egypt on account of an attack of enteric fever called for remark in the pages of this journal. The report was extremely disquieting, more particularly because there was no doubt in regard to the main facts. It appears that these men had been under treatment for enteric fever, and had been sent home to convalesce. The Federal Government has recently communicated certain facts to the Premier. It appears that one transport carried seven officers and 159 men. Of these, 63 had embarked at Malta. It is also stated that on board the same transport there were 77 soldiers convalescent from enteric fever. In addition, the Department of Defence admits a further seven cases of enteric fever among the men who have been on board the last six transports from the Mediterranean to Australia. A very significant sentence is appended. "The enteric fever cases are reported to be of a very mild form." We have received information from a reliable source that the Widal test was applied to a large number of men who were suffering from a condition which corresponded clinically to enteric fever in Malta and elsewhere, and that the test proved negative in practically every case. It may be possible at a later date to ascertain what Colonel Charles J. Martin discovered in regard to these cases. But in the absence of this information, it appears to be probable that the diagnosis was at fault, and that the organism producing this typhoid-like illness was Schottmüller's *bacillus paratyphosus A or B*. Some of the cases may have been atypical instances of colitis or other intestinal infections. In any case, we are pleased to have received some explanation to account for the facts, since, had enteric fever been as widespread as the report made it appear, the efficacy of anti-typhoid serum or the thoroughness of its application would have to be questioned.

THE AMENDMENT OF THE QUARANTINE ACT.

A Bill to amend the Quarantine Act has passed through the Federal legislature. The text of the amending Act will be published in a subsequent issue of *The Medical Journal of Australia*. This measure has been introduced ostensibly for the purpose of remedying certain defects which have been found to exist in the parent Act. One amendment has been introduced to admit of greater control over vessels trading between Australian ports during the currency of an epidemic. Another has evidently been designed to tighten up the control of cases of the ordinary infective diseases discovered on board vessels on their arrival in Australian ports.

The third amendment of importance is one which provides that regulations may be made prescribing measures of quarantine within any quarantine area. This power would appear to be somewhat extensive, and would, if fully applied, permit of Commonwealth control of epidemics of quarantinable diseases occurring on shore. The reason for this amendment is not evident, but it is presumed that with the distribution of powers between the Commonwealth and the States, this newly-acquired power would not be applied arbitrarily. It is probable that, save in serious and urgent emergency, it would only be applied after the establishment of some prearranged co-operation with the State Government.

The Act gives the Federal authorities power to make regulations prescribing the conditions under

which any prophylactic or curative vaccine or serum may be prepared or offered for sale. This power seems to be extensive, and it remains to be seen to what extent the Federal Government intends to apply it. Its practical application might conceivably be attended by difficulties. There does not seem to be any immediate need for any control of the various Government or University laboratories. It might be applied in a formal manner, in the registration of the institution and of the preparations of each institution. On the other hand, as stated by the Minister for Trade and Customs when introducing the Bill, vaccinia lymph has recently been prepared by private individuals for their own profit. If this be so, it is obvious that some control should be exercised over such a practice. The powers might also be applied with advantage in compelling the vendors of imported preparations to provide a proper label for all vaccines and sera. It is essential that the age of the preparations should be disclosed when they are sold, and that the strength should be plainly stated on the label.

Naval and Military.

The despatches sent by General Sir Ian Hamilton to London on November 6, 1915, contains the names of a number of officers and men who have been conspicuous for bravery and devotion to duty. Under the heading Australian Army Medical Corps, the names of Colonel Beeston, Lieutenant-Colonel Bryant, Captain Chambers and Captain Fry are included. It has been announced that Colonel J. L. Beeston has been decorated with the Order of the Companion of St. Michael and St. George.

According to the New Zealand press the medical staff of the New Zealand General Hospital at Pont de Koubbeh, Cairo, is working shorthanded, there being only 7 medical officers instead of 25. The Officer in Command is Colonel Parkes, of Auckland, the Adjutant Dr. Maguire, while Dr. Barnett, of Dunedin, and Dr. Bowerbank, of Wellington, are in charge of the surgical and medical wards respectively. The assistant surgeons are Dr. Scott, Dr. Fergus and Dr. Wallis.

The following appointments and resignations have appeared in the *Commonwealth of Australia Gazette* under date of November 4, 1915:—

Army Medical Corps.

To be Captains—

Captain (provisional) S. G. L. Catchlove, A.A.M.C.
Captain (provisional) G. E. Marolli, A.A.M.C.
Captain (provisional) N. R. Catford, A.A.M.C.
Eustace Russell.

Corrigendum.

To be Captain—

Charles Christopher Corlis. (This cancels the notification respecting this officer which appeared in *Commonwealth of Australia Gazette*, No. 53, of 8th June, 1915.)

Royal Australian Navy.

The resignations of the following officers of their temporary appointments are accepted as from the dates set opposite to their respective names:—

Surgeon (temporary)—
Hugh Sylvester McLelland. Dated 15th July, 1915.

Surgeon (temporary)—
Rupert Walter Hornabrook. Dated 2nd August, 1915.

It has been announced in the daily press that Lieutenant-Colonel C. Carty Salmon, M.P., Officer in Command of the Base Hospital, has been suffering from an attack of neuritis, which has compelled him to seek leave of absence. It is also stated that he has decided to ask to be relieved for a time of his active military duties, in order to enable him to carry out his public duties.

The Distinguished Service Order has been conferred, on October 28, 1915, to Captain Finn, of the New Zealand Army Medical Corps for conspicuous devotion to duty from August 6 to 9. He worked day and night unceasingly without rest, evacuating the wounded under continuous fire. The dressing-station was heavily shelled for an hour, many assistants being wounded.

It has been announced on the 15th ult., that Captain J. P. Kenny, 4th Field Ambulance, late of the 13th Battalion, is in a hospital in London, ill. In the same list the name of Captain W. J. Stack, of the 4th Battalion, late of the 1st Australian General Hospital, appears among those of the men who have disembarked at Malta on account of illness.

THE PRINCIPAL MEDICAL OFFICERS.

An announcement was made in the daily press on October 8, 1915, in the form of a letter signed by Lieutenant-Colonel Dodds, and addressed to the State Commandant of the 2nd and 3rd Military Districts, in which the conditions of appointments to the position of Principal Medical Officer are set forth. It is pointed out that the offices of the Principal Medical Officer in New South Wales and Victoria are of sufficient importance to justify the appointment of whole-time officers. Hitherto, the remuneration has not been commensurate with the duties and responsibilities of a capable officer. It has been decided that the occupants of the part-time positions will be required to vacate their offices on November 30, and that applications are to be sought from medical men to fill the vacancies. The salary will be increased to £800 per annum. The present occupants are eligible for re-appointment. The letter concludes as follows:—

"(4) Applications will be forwarded to a committee, consisting of—

The Adjutant-General;
The Director-General of Medical Services;
The Commandant of the District concerned;
The President of the B.M.A. of the District concerned (in the event of this official himself being an applicant some other official to be substituted);

who will submit their recommendation to the Minister.

"(5) Please communicate with the President of the B.M.A. in your District, requesting him kindly to place his services at the disposal of the Department in this capacity.

"(6) The selection will be made of the most suitable applicant of the highest professional attainments, who is also a capable organizer and administrator, irrespective of rank. The appointment will be for a period of six months on probation, to be confirmed if satisfactory for the period of the war, and four months thereafter, the successful applicant being granted the temporary rank of Colonel in the A.A.M.C. whilst holding the appointment.

"(7) The officer receiving the appointment will not have the right of private practice or of being employed in other public duties in his professional capacity.

"(8) Applications will close at District Headquarters on November 29, and the successful applicant should be available to take up the appointment from December 1, until which date the present P.M.O. will continue the duties.

"(9) Applications should be submitted on C.M. Form A.22, attachments being made thereto, giving in detail qualifications and previous experience, both in military and civil appointments."

Mr. Justice Cussen has recently completed his work of consolidating the statutes of Victoria. On October 26, 1915, His Honour received the appreciation and thanks of the two Houses. In the course of his remarks, in reply to a resolution of the Legislative Council, recording its appreciation of His Honour's work, he made some pointed remarks in regard to the Health Act. He had spent hours over some of the sections without being able to discover what they meant or how they could be worked.

Abstracts from Current Medical Literature.

DERMATOLOGY.

(169) Sclerodermia.

Dudley Corbett (*Brit. Journ. of Dermatology*, August, 1915) records a case of sclerodermia in a married woman, aged 54. There was no history of syphilis, and the thyroid gland showed no evidence of enlargement. Eighteen months previously she noticed that her fingers felt cold, while on the tips and around the nail slowly healing sores developed. The sores were preceded by inflamed areas. During cold weather she experienced a similar but more severe attack, and the fingers showed a gradual swelling, together with a cyanotic appearance. Simultaneously, the right arm and hand showed some rigidity, the skin becoming hard, swollen, and somewhat pigmented. The skin of the chest became similarly affected, while there was an altered facial expression, due to the stiffening of the skin of the face. On admission to hospital, a symmetrical sclerodermia was observed to involve the arms, chest, neck and face. The hands were stiff, and the fingers kept in a position of semi-flexion, the skin being cold and clammy, and slightly cyanosed. The lesion on the face did not interfere with mastication or deglutition. A diffuse, yellowish brown pigmentation affected the forearms and backs of the hands, together with the chest and neck, in a minor degree. Telangiectases were also scattered over the neck and chest. Subjective symptoms were absent, beyond some slight itching. The blood pressure was 125 mm. Hg. The radial pulse could be felt, and the vessels were not sclerosed.

(170) Inclusion Cysts of the Epidermis.

Graham Little (*Brit. Journ. of Dermatology*, August, 1915) records a case of inclusion cysts of the epidermis in a woman aged 66. The thyroid gland was noticed to have been enlarged for a period of 18 months. Three years before the hair on the scalp ceased to grow; the individual hairs did not exceed a quarter of an inch in length. Six months later there was general wasting, following prolonged diarrhœa. The tumours first appeared about this time on the neck and the anterior borders of the axillæ, and increased in number till they aggregated several hundred. The distribution was as follows: The axillæ, especially along the anterior borders and the sides of the chest, below the armpit, the flexor surfaces of both upper arms, the hypogastric and pubic regions, while sporadic, small swellings were present in the popliteal spaces, on the front of the legs, neck, the extensor surfaces of the forearms, and the upper portion of the forehead. They showed a symmetrical distribution, were uniform in size and appearance, and were closely grouped. They were situated in the skin, and were freely moveable with it, resembling boiled sago grains. Some exhibited a patent orifice at their summit, from which cheesy material, or a hard, horny, brown mass could be extruded. In a few suppuration occurred, leaving bluish stains. The tumours were the cause of some pruritus, and the patient suffered from frequent attacks of urticaria. Pigmentation of the skin was marked in the regions of the tumours, due, probably, in part, to the arsenical treatment, and in part to the scratching following the pruritus. Microscopically, the tumours were demonstrated to be inclusion cysts, the sections showing them to be formed by recent infoldings of the epidermis.

(171) The Detection of Pure Cholesterine Gall-Stones by the Röntgen Rays.

Owing to the extreme lack of density of pure cholesterine gall-stones, it was formerly considered impossible to detect them by means of X-rays. Cole (*Amer. Journ. Röntg.*, February, 1915) has examined a large series of these calculi, and estimates that 80%, submerged in bile, cast a shadow less dense than the bile itself, due to the fact that the calcium deposit is practically absent. Pure cholesterine stones are, however, so much less dense than bile. They appear like bubbles of air in the intestines, and when they are numerous and closely packed together, a typical honey-comb like shadow is produced. However, this method of diagnosis cannot be relied on, as it can in calculi containing a large percentage of calcium.

(172) Blake's Modification of Burrell's Method of Localizing.

G. G. Blake (*Journ. Royal Society*, January, 1915) deals with a new method of localizing, modelled on Burrell's method. It has one great advantage in that numerous foreign bodies can be localized on the same plate. He employs two metal cylinders, placed vertically; they are embedded in wax, at a distance of some 6.5 cm., and mid-way between is a short length of knitting needle (say 10 cm.), also placed vertically. In addition, a small wire triangle, welted with silver nitrate, is placed between the patient's skin, and the plate over the situation of the bullet. This is determined by a screen examination. Then, by making two exposures on the same plate, moving the tube a few centimetres, two shadows are obtained of each of the metal tubes, the knitting needle and each of the foreign bodies, and from the measurements so obtained, the depth can be estimated. In using this localizer, the wax, with the embedded cylinders, is placed towards one end of the plate, and the part to be rayed at the other. This method does away with all preliminary measurements.

(173) The Occipito Frontal Position in the Röntgenology of the Accessory Nasal Sinuses.

Charles A. Waters and C. W. Waldron (*Amer. Journ. of Röntgenology*, April, 1915) deal with a modified position which will clearly show the frontal and maxillary, and the anterior and posterior ethmoidal air cells on the same plate, without the petrous portion of the temporal bones obscuring the antra. They hold that the patients' skulls fall into two main groups, the concave and the convex shaped face, and that the recognition of this division is essential for the best results. The patient lies face downwards. The chin must rest on the plate, the long axis of the tube must be parallel to the plate, and the nose of the patient must be 1 to 1½ cm. from the plate, the former distance in the convex type, the latter in the concave. The use of soft tubes with intensifying screens is advocated. The anterior ethmoidal cells lie in the picture, to the inner side of the orbit, and the posterior ethmoidal cells to the inner side of the antra, the petrous portions of the temporal bones being situated at the lower margin of the antra.

(174) The Massive *versus* the Fractional Dose in Röntgentherapy.

A. M. Cole (*Amer. Journ. of Röntg.*, May, 1915) discusses the relative value of the two main methods of treatment by X-rays, and comes to the conclusion that when the destruction of abnormal cells, as in epithelioma, or deep effects on tissues is required, massive doses are much the more efficient; but he excepts leukæmia, Hodgkin's and similar diseases. Where, however, the stimulating effect of the rays on metabolism is required, as in eczema, *rosacea* and *acne vulgaris*, the fractional dose should be preferred; one exception is made to this, namely, depilation. This generalization cannot be held to be absolute; but he is entirely opposed to the discarding of the fractional dose. This dose is to be measured accurately, just as in the employment of the massive dose. In the employment of the massive dose, he foresees grave dangers from inexperienced operators.

BIOLOGICAL CHEMISTRY.

(175) Pituitary Extracts as Galactogogues.

Sutherland Simpson and R. L. Hill have performed experiments designed to indicate whether the increased flow of milk caused by the injection of pituitary extracts are due to expulsion of the secretion from the gland or to increased formation of milk (*Quarterly Journ. of Experimental Physiology*, February, 1915). The administration of extract of the posterior lobe of the pituitary gland, by subcutaneous, intramuscular or intravenous injection, to a lactating animal is followed by an increased flow of milk from the mammary gland. The effect is produced from twenty to thirty seconds after the injection. In view of the quick response and of the fact that pituitrin is known to be a powerful stimulant for non-striped muscle, it is not unreasonable to suppose that the effect is due to stimulation of the plain muscle of the gland. Plain muscle is abundant in the subcutaneous tissue of the nipple and areola, in the walls of the lactiferous ducts and sinuses

and around the secreting alveoli. Two experiments were carried out on female dogs, to whom barium chloride was given. The blood pressure and mammary secretion were recorded graphically. The injection of the barium salt raised the blood pressure, slowed the heart beat, but did not increase the flow of milk. The increased flow of milk produced by the injection of pituitary extract a few minutes after the administration of the barium salt shows that barium salts do not affect the secretion of milk.

E. A. Schäfer discusses the same question in the same journal. He has studied microscopical sections of the mammary glands from animals that have received injections of pituitary extract. He finds that if the muscular fibres in the ducts are divided, the alveoli appear to be quite empty, while if the muscular fibres of the duct are intact, the alveoli remain distended. He favours the view that the muscle fibres in the walls of the alveoli contract and expel the milk. He lays much stress on the fact that if the gland be completely emptied a certain time must elapse before a second injection of pituitrin can elicit any secretion of milk.

(176) Physiology of Lactation.

W. L. Gaines presents some data and discussion based on an investigation of certain phases of the activity of the mammary gland (*Amer. Journ. of Physiology*, August, 1915). He has injected defibrinated blood from a pregnant, non-lactating, multiparous goat into a non-pregnant, non-lactating multiparous goat, with negative results in reference to an increase in volume of the mammary glands or of milk secretion. The injections were made over one month, during which time the increase in volume of the mammary gland of the goat acting as donor was 160 c.cm. Later, the conditions were reversed, when the goat acting as recipient had become pregnant, and its mammary gland underwent considerable hypertrophy. The amount of milk supplied from the mammary gland is subject to great variations. To see whether these variations depend on the characters of the blood circulating through the gland, blood was transfused from a goat with a high yield of milk to one with a low yield. No effect was produced by the transfusions, which were repeated a number of times. Subsequent observations showed that the mammary gland with the low yield could, when properly activated, deliver a large volume of milk. Injections of an aqueous extract of dried, fat-free, mammary gland of the cow into a goat lead to no increase in the quantity of milk or in the amount or percentage of fat in the milk. Careful experiments have been performed on the effects of pituitary extracts on the flow of milk. The injection of pituitrin, immediately following a regular milking, produces a flow varying inversely with the yield secured by milking by hand. Subsequent injections of pituitrin cause no secretion of milk. The non-lactating gland is not sensitive to pituitrin until the last stage of pregnancy is reached. Nursing, milking and insertion of a canula into the teat excite a reflex contraction of the musculature of the gland and expression of milk. Removal of milk from the gland depends on this reflex, and may be completely inhibited by anæsthesia. The internal capacity of the mammary gland is greater than the volume of milk drawn at one time, and the udder sinks in volume during milking to the same extent as the volume of milk withdrawn.

(177) Normal Human Gastric Juice.

A. J. Carlson has examined the gastric fluid from a man with a gastric fistula of twenty years standing, with complete cicatricial stenosis of the œsophagus (*Amer. Journ. of Physiology*, August, 1915). The gastric juice was at no time mixed with saliva. Two types of gastric fluid have been tested: (1) The hunger juice, which is secreted slowly and continuously, without the stimulus of food, and (2) the appetite juice, which is secreted rapidly under the stimulus of food in the mouth. A large number of specimens of each kind of fluid have been examined, but only a few determinations have been made on each separate specimen. The total solids amounted to rather more than a half per cent., being slightly higher in the case of hunger juice. The specific gravity varied slightly around 1007. The osmotic concentration was such that the freezing point of appetite juice lay around —0.57° C., of hunger juice about —0.50° C., and of the contents of the "empty stomach" about —0.3° C. The gastric juice contained nitrogen in sufficient amount to suggest that the bulk of the organic matter, which formed about 75% of the total solids, was composed of proteins. A small amount of ammonia was constantly present, and a slightly larger quantity of amino-nitrogen, showing that the bulk of the nitrogen was in the form of complex proteins. The acidity of the gastric juice has been measured some hundreds of times during three years. The total acidity has been estimated by titration with phenol-phthalein and the free acidity with di-methyl indicator. The average of 285 determinations of the total acidity of appetite juice was 0.48%, expressed as content in hydrochloric acid, and the free acid as 0.40%. For hunger juice the average of 180 estimations was for total acidity 0.34% and for free acid 0.25%. Normal gastric juice, when excreted above a certain minimal rate, shows a practically constant total acidity that can be expressed as equivalent to 0.5% hydrochloric acid. The normal acidity of the undiluted juice is greater than the total acidity reported by clinical observers in cases of so-called hyperacidity. The author considers that there is no evidence that the gastric glands under pathological conditions ever secrete a juice of higher than normal acidity. The total chlorides of the appetite juice are constant in amount, and, in hunger juice, the amount is diminished in proportion to the diminution of the acidity. This suggests that the low acidity of hunger juice is occasioned by neutralization of the acid by the alkaline mucus of the stomach. Estimations of the quantity of pepsin show that it is present in large excess over the amount required for economic digestion. Ten grams of finely divided boiled egg-white were completely dissolved by 1 c.cm. gastric juice in three hours. Since 600 c.cm. is not an excessive quantity to be secreted for the digestion of one meal, it is evident the stomach secretes an excess over the actual needs for digestion of the protein in the meal. This probably explains why the clinical finding of greatly diminished content in pepsin is noted without any evidence of impaired digestion, provided there is no diminution in the amount of acid.

(178) Acidity Curves in the Stomach and Duodenum.

J. F. McClendon has drawn curves of the changes in acidity in the human stomach and duodenum (*Amer. Journ. of Physiology*, August, 1915). He has measured the acidity in terms of the concentration of hydrogen ions by a hydrogen electrode passed into the stomach or into the duodenum or by the same means on small samples withdrawn from the stomach through a small-bore tube passed into the stomach and left continuously in the stomach. In this way the changes in acidity are measured every few minutes, and an accurate picture of the change in acidity around the electrode is assured. The author points out that, in the early stages of digestion, the contents of the stomach are not well mixed together. In consequence, one portion of the stomach may be much more acid than another. Many of these studies have been made on infants, and interesting figures record the digestion of human milk. The studies on the acidity of the duodenum were carried out chiefly in infants. The author found that the contents of the duodenum are on the acid side. He concludes that in the human infant fed on milk the alimentary canal contains acid contents throughout its entire length.

(179) Urobilin in the Urine.

J. Ville describes a simple way of improving the methods for detecting urobilin in urine (*C.R. Soc. Biol.*, June, 1915). Urobilin in the urine is distinguished by the green fluorescence that it gives, in ammoniacal solution, on the addition of a salt of zinc and by its characteristic absorption band at the junction of the green and blue portions of the spectrum. Urines which are strongly coloured, especially with biliary pigments, mask the fluorescence and are not readily examined with the spectroscope. By means of precipitation with a solution of barium chloride the urines can be rendered transparent and colourless. Further, the test can be carried out by adding the barium solution and then a solution of ammoniacal chloride of zinc in alcohol containing ethyl acetate. On filtering the mixture, the green fluorescence can be observed and the liquid used for the spectroscopic examination.

British Medical Association News.

SCIENTIFIC.

A meeting of the Victorian Branch was held at the Medical Society Hall, East Melbourne, on October 20, 1915, Dr. Andrew Honman (the President) in the chair. There was a large attendance.

The discussion on epidemic cerebro-spinal fever, which stood adjourned from the meeting of October 6, 1915, was resumed.

Dr. A. V. M. Anderson stated that during the past fortnight he had noted several cases of febrile disturbance associated with stiffness of the neck and Kernig's sign. He thought it probable that these may have been cases of general meningococcic infection, without initial symptoms of meningeal infection. The meningeal infection might develope at a later period in these cases. The early symptoms had been regarded as influenzal, but, as a rule, no catarrhal symptoms had been present.

The diagnosis in the early stages of cases of this kind was necessarily difficult, unless the meningococci were present in the naso-pharynx. A blood culture might be of service.

As it was agreed that infection in cases of cerebro-spinal fever took place rather through carriers than from patients suffering from the diseases, it would seem to be a matter of great importance that contacts with patients should be thoroughly investigated as to the presence of the meningococci in their noses and throats.

The bacteriological investigation was difficult; but, according to Sophian, reasonable certainty as to the diagnosis might be attained in 48 hours, without fermentation tests. If any limitation to the spread of the disease was to be accomplished, laboratory diagnoses would be essential. It would involve much expense and extension of laboratory accommodation, both in camps and elsewhere; but if it was the main essential required for checking the diseases, should it not be done?

Dr. E. Robertson, Chairman of the Board of Public Health of Victoria, dealt with the statistical evidence. The first case was reported on May 17, but there had been other cases before that date. The disease had been made notifiable on August 10. Between May 17 and October 18, there had been 184 military cases and 290 civilian cases. Of the civilian cases, 204 were in the metropolitan area, and included 110 males and 94 females. There were 86 cases in the rural districts, including 53 males and 33 females. The ages varied from three weeks to 84 years. The total number was 494. In referring to the distribution, he demonstrated that the cases were spread all over the metropolitan area, especially in the Northern districts; each municipality had had some cases. The 86 cases in rural districts were distributed over 54 municipalities, extending over the length and breadth of the State, except the mountainous district in the centre.

The total number of deaths was 197. This represented a case mortality of 41.5%. Fifty-eight of the female patients, *i.e.*, 45.6%, and 139 of the male patients had died.

Among the civilian cases, only 16 were discovered to have had contact with a pre-existing case, that is, 94.5% had not come in contact with a previous case. In regard to multiple cases in the same house, there had been only six instances; that is, in only 2.1% of infected houses had there been more than one case.

Turning to the question of the relation of civilian cases to military cases, Dr. Robertson stated that the number of civilian patients that had come in contact with military cases was six, while three other patients had come in contact with suspicious cases. Suspicious cases would include those persons suffering from influenza. For example, a soldier went to the country to stay with his uncle, 17 miles from a settled neighbourhood. He had influenza, and was taken to a private hospital. Nine days later the uncle died of cerebro-spinal meningitis. It was concluded that the soldier had had it also. The number of patients who had visited camps was nine. The number of those who were closely associated with military men, *i.e.*, who had occupied the same house with perfectly healthy soldiers, was 22. These included a female, who served a soldier with a glass of beer over the hotel counter; the contact must have been very slight. Taking the largest view, there were 40 contact cases out of a total of 290.

According to the Press, the military was the main source of spreading the disease. The reports showed that the military were not mainly responsible, and that popular belief was in error.

In August, 234 cases were reported; in September there had been 169, and, up to October 18, 71. According to the figures, the disease was therefore on the downward grade.

The first prophylactic measure to be put into force was notification. The Health Act was obsolete in this regard. A disease could not be declared notifiable until it had become prevalent. The powers were in abeyance, and smallpox, for instance, would have a good start before notification could be legally brought into action. There were powers for removal of sick persons from houses. If the doctor gave a certificate that a patient was suffering from an infectious disease and should be sent to a hospital, it could be done, but it would be necessary to obtain a justice's order. When it was necessary for public health reasons that a man should be removed, a certificate from an Officer of Health and one from two medical practitioners had to be obtained. There was a further provision that the house might be isolated if there happened to be an infectious disease therein; but there was no power to isolate any contact not within the house and an Act of Parliament would be required to enable this to be done.

It appeared that the infection from diagnosed cases of meningitis were not very great, and that the suspects were the medium of conveying the infection. The persons who were mainly responsible for spreading infection were not those suffering from meningitis, but those who were suffering from meningococcal infection in its catarrhal and influenzal forms. He would be pleased if suggestions were made as to how all these persons could be isolated.

The staff of the Health Department could not take adequate measures for the prevention of the spread of epidemic diseases, as the medical and sanitary branches of the Health Department at present consisted of himself and one sanitary inspector.

Captain Alex. Cook, A.A.M.C., of the Clearing Hospital, Broadmeadows, spoke of the difficulties connected with the diagnosis of cerebro-spinal meningitis in its early stages, under the conditions obtaining at the Camp.

Some of the cases brought in were apparently influenzal in character. One was that of a man with a temperature of 100° or 101°, and but little prostration. The symptoms indicated in Dr. Stewart's paper were not present. The rash was absent in 20% of the cases; there was a muddy, brown face, pointing to acute toxæmia, and the pupils were frequently unequal. The headache was always frontal. The reflexes were exaggerated, especially the knee-jerks much marked. Babinski's sign was present, and there was a well-defined Kernig's sign. A common symptom was the stiffness of the neck, as evidenced by the inability of the patient to approximate his chin to his chest. A similar stiff neck was often developed in measles. Vomiting was not a definite symptom in the cases met with in camp, that is, cases within 24 hours of the onset. As soon as definite symptoms and frontal headache were noted, the patient was sent immediately to the base. In many cases the patients were found to have had an attack of influenza only. One man with exaggerated reflexes became deaf within 24 hours. Mental dulness was present in the majority of the patients, and increased during their stay in hospital. In some instances men were brought in comatose; no information could be got from them, but on the following morning they were able to give an account of their illness. There had been a doubt in his mind as to whether these were cases of cerebro-spinal fever, but, on going through the Alfred Hospital, this doubt had been removed, and he was convinced that they were.

The general symptoms were extreme prostration, with little temperature, exaggerated reflexes, marked knee-jerk, marked Kernig's and Babinski's signs, and rash, as well as vomiting and headache, as described by Dr. Stewart. Three men had been brought into hospital for epilepsy, and two for insobriety. These cases proved to be cerebro-

spinal fever. Unconsciousness at times developed rapidly. It was possible to rouse the patients for a few moments.

No preventive measures could be taken in the camps. There were 800 contacts alone at Seymour. It was his opinion that infection was carried by kissing more than by anything else, and until kissing was stopped, cerebro-spinal meningitis would continue.

Dr. R. J. Bull recorded his appreciation of the papers read at the meeting of October 6, 1915. The diagnosis of a disease as protean in nature as cerebro-spinal fever was often difficult, save in typical cases. In the cases described by the Military Authority at the Aldershot Isolation Camp, three stages were recognized, *viz.*, the catarrhal, the septicæmic, and the meningeal. In some cases the disease did not proceed beyond the catarrhal condition. In others, the second or septicæmia stage might be reached, and if a lumbar puncture were then performed the fluid would be found to be free from cells, sterile, and clear.

He referred to the difficulty in checking the disease. In the returns of the Local Government Board of England for the year 1909, 80 of the 130 cases in which death was ascribed to meingococcal infection had been added after consultation with the Health Authority. In these cases the diagnosis had not been made until after death. It was possible that instances of the disease had, in past years, escaped recognition in Australia.

He had been struck by the variability of some diseases. He instanced caseous lymphangitis, a disease of sheep, as an illustration of this variability. He expressed the opinion that the present epidemic of meningitis was similar to that existing in the Old World.

The only definite means of diagnosing the disease was by the isolation and identification of the micro-organism from the cerebro-spinal fluid. This appeared to be necessary, inasmuch as some cases of meningitis recorded in England in 1906 were not due to meningococcus, but were due to the *micrococcus catarrhalis*.

In dealing with the question of the detection of carriers, Dr. Bull pointed out that the fermentation tests were required to differentiate between meningococci and other cocci. He pointed out that, inasmuch as it was not necessary to make pure culture to establish the identity of the bacillus of diphtheria, the detection of carriers in this disease was easy. In the case of a meningitic infection, it was necessary that the meningococcus should be isolated in pure culture from the throat or naso-pharynx. Some months before he had examined 200 or 300 contacts. In 45% he had obtained definite Gram-negative organisms, which could not be distinguished microscopically or culturally from meningococci. The appearance of the mixed culture suggested that the majority of the colonies were composed of *micrococcus catarrhalis*. It would have taken the whole of the University Laboratory Staff six months to have isolated these organisms in pure culture. He maintained, therefore, that it would be a very difficult matter to detect carriers in the community on a large scale. Even the detection of Gram-negative cocci required the application of a special staining method, which was full of pitfalls. He placed more reliance on the examination of smears than on that of cultures. In many instances the organisms removed on the swab died in transit. In addition, local antiseptics were being used very freely, and, in many cases, a sufficient quantity was transferred to the culture tube, to prevent the growth of an organism. He had adopted the method of making smears directly from the swabs, and of noting whether any organism resembling meningococci were present or not.

Dr. Bull dealt, in the next place, with the agglutination test. He was not inclined to place any reliance upon this test in meningococcal infection. He ascribed the irregular results obtained to group relationship of some of the cocci. Similarly, complement fixation had little value in meningococcal infection.

The blood of a patient was frequently found to be rich in antibodies. The cerebro-spinal fluid, on the other hand, usually contained no antibody, unless anti-meningococcic serum had been injected before the lumbar puncture.

Turning to the question of treatment, he pointed out that two Departments of the University had been able to supply the hospitals with local serum, which was stronger than imported serum. Dr. Stewart had stated that he had obtained good results from it in some of his cases. Dr. Bull claimed that a satisfactory anti-serum could be prepared within two months of the first injection into the horse. He stated that it had been asserted that from six to ten months were required to produce a potent serum. He claimed that good results had been obtained after intravenous and intrathecal injections.

He called attention to a very important point. Anti-meningococcic serum was able to fix enormous quantities of complement. He was of opinion that the action of the anti-serum was due to its combination with complement. The serum itself was devoid of complement. A variable amount of complement was present in the patient's blood, but none existed in the cerebro-spinal fluid. He failed to see how good results could follow the injection of anti-serum into a situation where there was no complement. It was like using a gun without any cartridges. Better results might be expected when the serum was fortified by fresh complement containing serum. This could be supplied in the form of simultaneous injections of the serum of a person who had recently recovered from the disease. In the absence of such a serum, the serum of a healthy person or of a horse could be employed within 24 hours of the withdrawal of the blood. Mackenzie and Martin has obtained encouraging results from the use of serum from convalescents instead of using anti-meningococcus serum. He did not place much reliance on the curative value of serum.

Dr. Fairley had obtained satisfactory results from helmitol given by the mouth. This was analagous to the treatment instituted by Maguire, who injected formalin intravenously in cases of pulmonary tuberculosis. Dr. Bull thought that research on these lines should be encouraged.

He stated that there were two methods of eradicating infectious diseases, *viz.*, to immunize the community, and to destroy the reservoirs of infection. In regard to the first method, an attempt to increase the general resistance of the community was only handing to a future generation the burden of the present day. By attacking the sources of infection, the disease would die a natural death. By attempting to immunize individuals only a limited amount of resistance was produced in the community. The causative organism might continue to flourish in the person whose resistance was raised, the result would be that the number of carriers would be increased. The meningococci had been found to grow in specific serum, and would presumably grow in immunized persons. Dr. Bull pointed out that one attack of the disease did not protect against a subsequent infection. He spoke of one instance in which the same patient had had three attacks, and of several in which two attacks had been noted. Arguing from analogy, he maintained that vaccination on a large scale had failed to free countries of plague. He claimed that the second method of destroying the focus of infection had led to better results. He had formed the opinion that vaccination against enteric fever was of no avail, except as an expedient in emergencies. It was, in his opinion, justifiable to increase the resistance of the troops, since the conditions in which they were placed were exceptional. In ordinary conditions, efforts should be made to improve sanitation, to destroy flies and their breeding grounds, and to protect drinking water and milk from contamination. He also held that tuberculosis could be stamped out in a generation by stopping spitting. He had come to the conclusion that meningitis could be eradicated by the continuous wearing of respirators, although he admitted that this was scarcely a practicable measure.

Turning to the question of the prophylaxis of cerebro-spinal meningitis, they should remember that the air breathed was infected by an organism of low vitality. Direct contact was required to spread the infection. A healthy soldier, visiting his home in the country, brought death with him. He should therefore be isolated. Other bacteria paved the way for the meningococcus. He held the opinion that an epidemic would have developed, whether camps had existed or not, since a long, wet winter had been conducive to its development and spread. It was impossible to segregate every carrier, since it was impossible to discover them all. The soldiers had been everywhere, and, consequently, the large majority of homes might har-

bour the infection. It therefore became necessary to segregate the patients. He urged that ventilation, a limited number of people to each tenement, the cultivation of healthy habits and of a healthy mode of living, should be insisted on. Closed windows in trams, trains and houses were dangerous; and sneezing and coughing were equally so. Sneezing should be smothered in handkerchiefs. Another direct means of conveying the infection was through kissing. He advocated the French system, and thought that, were it adopted, there would be less disease in the community.

He expressed the opinion that vaccination against cerebro-spinal meningitis, to be of use, would have to be repeated several times in each individual to produce immunity, and would therefore be impracticable on a large scale. It would be far better to attempt to destroy the organism in the reservoir of infection.

He said that an attempt should be made to destroy the meningococcus in the throat. He had experimented with eucalyptus oil for this purpose, and had been surprised with its efficacy. A number of culture tubes, containing suitable media, were inoculated with the meningococcus. A definite number of drops of eucalyptus oil was placed on the plug and inserted into the tube, without coming into contact with the medium. In other tubes, the same procedure was repeated with menthol and creosote. While two drops of eucalyptus oil prevented all growth, six drops of menthol or creosote only inhibited the growth to a certain extent. In the case of *staphylococcus aureus* and *bacillus typhosus* the use of menthol, eucalyptus or creosote failed to produce a useful result, even when quantities employed were greater than those required to destroy the meningococcus. He believed that the use of eucalyptus, or a similar antiseptic, would effect more good than any other measure.

In conclusion, he pleaded for the establishment of a health museum, in which the public could learn the principles of hygiene and the effect of certain practices on the health of the community.

Dr. A. Jeffreys Wood said that the first case of cerebro-spinal meningitis that was diagnosed at the Children's Hospital, Melbourne, was in April, 1900, and that Dr. McKenzie reported seven cases in *The Australian Medical Journal* (1901, p. 369). Fifty-nine sporadic cases had been admitted during the past 15 years ending June 30, 1915. These cases had all been treated in the general wards of the Children's Hospital, without any special precautions, and no case of infection by contact had occurred. The following table showed that the meningococcal carriers had been present in the community since the Boer War, if they were not here previously:—

	Cases.	Deaths.
1900-1	1	1
1901-2	10	3
1902-3	11	8
1903-4	2	1
1904-5	—	—
1905-6	—	—
1906-7	—	—
1907-8	1	1
1908-9	2	1
1909-10	—	—
1910-11	10	4
1911-12	4	2
1912-13	9	4
1913-14	3	1
1914-15	6	2
Total	59	28

i.e., a death-rate of 47.4%

During the present epidemic, 86 cases of cerebro-spinal meningitis had been admitted and treated in the special ward reserved for these cases at the Children's Hospital. The deaths so far were 36, giving a death-rate of 41%. The fatality would probably be slightly higher by the time the epidemic ceased.

In eight instances, two children from one family had been admitted during the present epidemic.

The nurses at the Children's Hospital had all been protected by prophylactic vaccination, and, although vaccinated during the time they were nursing the cases, the bogey "negative phase" was not apparent, for no nurse has been infected. At the Alfred Hospital, he had been informed, vaccination of nurses had not been employed, and in no instance had a nurse contracted the disease. This was only a repetition of the history of previous epidemics, that once the meningococcus showed its special affinity in the human being for affecting the meninges it lost its power to harm other human beings. With regard to the efficacy of prophylactic vaccination against epidemic cerebro-spinal meningitis, as recommended and practised by Sophian and Black in 1912, Black had demonstrated (*Journ. Amer. Med. Assoc.*, April 26, 1913, and December 12, 1914), by the complement fixation test, that seven out of ten vaccinated students showed a high degree of immunity two years after the original vaccination. Neter read a paper recently before *L'Académie de Médecine* (*Journ. Amer. Med. Assoc.*, July 31, 1915, p. 442), showing that the results of serotherapy had been remarkable in the present epidemic of cerebro-spinal meningitis in France, the death-rate being as low as 3%.

The serum (polyvalent) was injected in massive doses on the first, second and third day, as early as possible after the onset. A delay in the diagnosis reduced the satisfactory results. In conclusion, Dr. Wood expressed his very high appreciation of the work done by the resident medical officers of the Melbourne, Alfred and Children's Hospitals during the present epidemic, and of the great value of the papers read by the members of the staff. These papers had been written during a time of unusual stress of work.

Dr. T. Walker Sinclair stated that 33 cases were notified from a total civil population of 105,000. The military cases numbered 54 out of a total of 20,000. Had the incidence of the disease been as high among the civilians as among the military, there would have been 250 civil cases. It would therefore be rational if more drastic action were taken in connexion with the military cases than had been done. In regard to civilian cases in two houses only were there two cases. The time between the onset of the first and second case was three and four days respectively. In another case the patient had been in the hospital a week before developing the disease. It then appeared that the incubation period was three or four days.

The disease had extended all over Melbourne except Lonsdale Ward, at the west end of Collins Street, and the Albert Ward, *i.e.*, Punt Hill. The greatest incidence was North Melbourne and Kensington, 2.6 per thousand; the next was North Carlton, 0.45 per thousand.

When the disease was epidemic nothing could be done so far as the general population was concerned; but when the outbreak was localized in schools, encampments, etc., the matter was different. Nevertheless, he urged isolation of the cases so as to minimise the number of carriers. In Munich garrisons it was found that 2% of the healthy soldiers were meningococcus carriers.

Cerebro-spinal meningitis, like other diseases of the naso-pharynx, was most difficult to handle. All patients should be isolated; but since there were ten times as many carriers as patients, it would be impossible to carry out their isolation.

Major W. B. Vance contended that insanitation had not played any part in the epidemic of cerebro-spinal meningitis. There had been cases in the open air and in the Grand Stand at Flemington Racecourse. No cases had occurred at Langwarrin, where the sanitary conditions were bad. Although there had been overcrowding, sanitation had had nothing to do with the disease. Captain Rothera had worked out the period of incubation as 11 days. The soldiers had been blamed for the spread of infection, but in places like Ballarat, Bendigo, and Geelong, when it was possible to exclude the public the disease had been stamped out. This action had been possible in country towns, where the soldiers could be properly supervised. An interesting case occurred at the Bendigo Hospital. A patient, aged 60, had been in the hospital for several years for locomotor-ataxy. He contracted the disease, and died. The ward was 100 yards from the ward containing meningitis patients. The staff in the isolation

block was separated, and the nurses slept on the premises. The public were excluded from the hospital, and a guard was placed at the gates.

Despite the talk of the papers, the military authorities had carried out isolation thoroughly. Contacts had been isolated; smears had been taken, and the contacts were not set free until the smears were negative. All catarrhal cases were removed from the camps. Everybody with a sore throat had his throat examined, and all contacts with suspicious cases were isolated. It was not possible to go much further than that. Gram-negative diplococci had been discovered in one out of every seven throats.

Dr. Harvey Sutton, who had been in charge of the Coode Island Hospital, urged the Branch to deprecate the fomenting of a public panic by members of the profession. His lay friends refused to come within five yards of him when they learnt that he had been in contact with a cerebro-spinal patient. As a matter of fact there had been no infection among members of staffs, either in Victoria or in any other part of the world. He would be in favour of removing camps from the large cities as a wise precautionary measure. Major Vance pointed out that the difficulty of supplying water to 25,000 men in the country was an insurmountable obstacle to the removal of the camps. He added that a further precautionary measure had been taken by the military authorities. Men on sick leave were not allowed to stay overnight in any house; and men before being granted leave to stay away a week-end had to be passed as medically fit.

Dr. W. Ostermeyer said that he had seen cases of cerebro-spinal fever in which meningitic signs and symptoms had been absent. He had seen a patient on the fifth day of his illness. He was exceedingly ill, was sweating and shivering, had a sore throat, and was prostrated. There was no pulmonary catarrh, nor running at the nose; his throat was a little congested, and he had high fever. He prescribed phenacetin and aspirin. The symptoms disappeared, and he wanted to get up. Since cerebro-spinal fever often terminated by crisis he dissuaded the patient from going back to work. Three days later his child, 3 months old, was brought to him; it was whining, irritable, and white, and refused the bottle. On the third day it was admitted to the hospital, and the diagnosis of cerebro-spinal meningitis was made. In three or four other cases he had arrived at a diagnosis of influenza. The crisis in these cases was very rapid, and he suggested that they were instances of cerebro-spinal fever.

Dr. Honman remarked on the fact that the staff of the Central Board of Health was very small. In spite of this fact the press expected the Board to combat the epidemic. The Minister's assertion notwithstanding, the epidemic was a severe one, with a dreadful mortality. The disease had been banished from camps; and by a properly established hospital to treat all classes of infectious diseases, a considerable diminution of the epidemic might be effected. Until recently it was impossible to get a case of measles into the Fairfield Hospital, but it was hoped that shortly provision would be made there for the treatment of all infectious diseases. He thought that if there had been an outbreak of similar proportions among sheep better provision would have been made to meet the epidemic than there had been in the case of human beings. Quoting from a recent number of the *Lancet*, he pointed out that in one year between 20,000 and 40,000 had died of the disease in one tribe in Uganda in spite of its equatorial situation.

Dr. F. G. Scholes said that up to about 12 months before it had been impossible to admit measles patients into the Fairfield Hospital, as it was a choice between putting them on the grass or leaving them in the ambulance. They were now treating 200 soldiers and as many civilians, which was more than any other hospital in the world had done in 12 months. Incidentally he remarked that he was treating measles and whooping cough in one tent without fear of infection; there had never been a case of measles following a case of whooping cough in 30 years. He pointed out that Dr. Bull had suggested that all cases of cerebro-spinal meningitis should be isolated, and admitted that carriers could not be isolated, although they alone were sources of infection.

Dr. Frank Andrew pointed out that they were not in a position to isolate all carriers. To isolate every catarrhal case was an impossibility. Dr. Sutton was of opinion that comparatively little was known about the disease, and that all the proposed measures were theoretical and of no value. If in the future the public and soldiers were to live in pure air and sleep in pure air, there would be very little cerebro-spinal meningitis. In the new huts, which accommodate 50 men, the atmosphere in the morning was abominable, and that was not conducive to a healthy state of the troops. Better provision should be made for ventilation. It should be a rule among military men that the non-commissioned officers should see that the air in the morning should be pure. At the first rush to arms they were overwhelmed, and there was necessarily a large amount of overcrowding.

Dr. D. Rosenberg suggested that if inoculation gave protection one camp should be inoculated and then they could see if there were a recrudescence. He mentioned that a large number of medical men and their children had been inoculated.

Dr. Bull stated that this proposal might be good as an experiment, but the great objection was that it would be a menace to the rest of the community, and might lead to an increase in the number of carriers. He considered that intelligence on the part of the public was needed. It would be ridiculous to inoculate the community against typhoid; increased vigilance on the part of sanitary inspectors was essential.

BELGIAN DOCTORS' RELIEF FUND.

Queensland.

We have been asked to publish the following list of subscriptions to the Belgian Doctors' Relief Fund, which have been received by the Honorary Treasurer of the Queensland Branch. This constitutes the fifth list. The sum has been handed to the Treasurer of the New South Wales Branch for transmission to London.

	£	s.	d.
Amount previously received	74	5	0
Dr. Cooper, Lilian, Brisbane (October contribution)	2	0	0
„ Roe, A. S., Brisbane (October contribution)	1	1	0
„ Turner, A. J., Brisbane (October contribution)	2	2	0
„ Wallace, T. I., Longreach (September and October contributions)	2	2	6
Total	£81	10	6

Public Health.

THE HEALTH OF NEW SOUTH WALES.

The following notifications have been received from the Department of Public Health, New South Wales, during the fortnight ending October 25, 1915:—

	Metropolitan Combined Districts.		Hunter River Combined Districts.		Remainder of State.		Total.	
	Cs.	Dths.	Cs.	Dths.	Cs.	Dths.	Cs.	Dths.
Enteric Fever ..	9	3	1	—	14	3	24	6
Scarlet Fever ..	146	4	7	—	143	3	296	7
Diphtheria	80	3	8	—	69	—	157	3
Inf'ntile Paralysis	2	—	—	—	—	—	2	—
Meningitis	7	14	—	—	—	—	7	14

The number of cases of tuberculosis notified during the fortnight was 26. Two deaths were registered during the same period.

In regard to the distribution of scarlet fever, it appears that 31 of the cases notified occurred in Lithgow, 11 in Mudgee, 7 in Dalgety, 6 in Brewarrina, 5 each in Blacktown, Broken Hill and Cooma, and 4 in Meroo.

There were 9 cases of diphtheria notified in the Broken Hill district, 5 in Blacktown, the same number in Brewarrina, and 4 in Orange.

SMALL-POX IN NEW SOUTH WALES.

The number of small-pox cases reported to the Department of Public Health, New South Wales, during the week ending October 31, 1915, was:—

	Cases.
Country—	
Newcastle and surrounding district	31
Goulburn (infected from Newcastle)	1
Sydney (infected from Newcastle)	1
Total	34

The following is the return of small-pox cases reported to the Department of Public Health, New South Wales, during the week ending November 7, 1915:—

	Cases.
Country—	
Newcastle and surrounding district	24

EPIDEMIC CEREBRO-SPINAL MENINGITIS IN NEW SOUTH WALES.

We have been informed that the number of cases of cerebro-spinal meningitis that have been treated at the Field Hospital at Liverpool up to November 4, 1915, was 36. The number of deaths was 15, and the mortality was therefore 41.75%.

THE HEALTH OF VICTORIA.

The following notifications have been received by the Department of Public Health, Victoria, during the week ending October 28, 1915:—

	Metropolitan. Cs.	Dths.	Rest of State. Cs.	Dths.	Total. Cs.	Dths.
Diphtheria	43	3	31	0	74	3
Scarlatina	13	1	3	0	16	1
Enteric Fever	4	0	1	0	5	0
Pulmonary Tuberculosis	13	5	19	5	32	10

The following is the return of the cases of epidemic cerebro-spinal meningitis notified to the Board during the week ending October 28, 1915:—

	Metropolitan Area. Cases.	Rural Districts. Cases.	Totals. Cases.
Military	—	—	6
Civil	17	6	23

The following notifications have been received by the Department of Public Health, Victoria, during the week ending November 4, 1915:—

	Metropolitan. Cs.	Dths.	Rest of State. Cs.	Dths.	Totals. Cs.	Dths.
Diphtheria	53	2	25	0	78	2
Scarlatina	14	0	5	0	19	0
Enteric Fever	4	0	2	0	6	0
Pulmonary Tuberculosis	20	7	11	5	31	12

The following is the return of the cases of epidemic cerebro-spinal meningitis notified to the Board during the week ending November 11, 1915:—

	Metropolitan Area. Cases.	Rural Districts. Cases.	Total Cases.
Military	—	—	2
Civilian	5	7	12

INFECTIVE DISEASES IN WESTERN AUSTRALIA.

The following notifications have been received by the Department of Public Health, Western Australia, during the week ending October 16, 1915:—

	Enteric Fever. Cases.	Diphtheria. Cases.	Pulmonary Tuberc'sis. Cases.	Erysipelas. Cases.	Septicaemia. Cases.
Fremantle East	—	—	—	1	—
Perth	1	6	2	2	—
Belmont	—	—	—	1	—
Kalgoorlie	—	3	1	—	—
Boulder	—	—	—	1	—
Buswood	—	—	—	1	—
Busselton	—	—	—	—	1
Comet Vale	—	2	—	—	—
	1	11	3	6	1

The following regulation, dealing with the custody of men suffering from venereal disease, has been published in the District Order, No. 108, dated November 2, 1915:—

> With reference to the control of men suffering from venereal disease in isolation camps, care is to be taken to prevent the absence of such men. During their isolation they are therefore not to be permitted to proceed outside the limits of the isolation camp except under proper control when deemed advisable.
>
> Any such men who are absent from isolation or go or attempt to go beyond the limits of the camp are to be tried by District Court-Martial under whichever of the sections of the Army Act is applicable to the particular case.

A case of small-pox was notified in Melbourne on October 28, 1915. The history is as follows:—

On October 28, 1915, a man presented himself to the outpatient department of the Melbourne Hospital for treatment. On examination, it was found that he was suffering from variola. The man had come from Sydney by the s.s. *Wodonga* as a third-class passenger. He was isolated as soon as the diagnosis was made, and the search for the remainder of the passengers of the vessel was commenced forthwith. The total number of passengers was 162.

The accommodation in the steerage quarters consists of one large open compartment fitted with bunks. The man joined the vessel at Sydney on October 25 and mixed freely with the other steerage passengers throughout the voyage, in spite of the fact that he had a well-marked variolous rash. The majority of the steerage passengers were persons interested in racing and intending to visit Melbourne to attend the Melbourne Cup. For this reason it has been found very difficult to trace the passengers. Of the 162, 122 have been traced, while 15 saloon passengers and 25 steerage passengers have been lost sight of.

The first class passengers were released under surveillance, and the steerage passengers were sent into quarantine, except in those cases in which evidence could be produced of sufficient protection by successful vaccination. In this case they were released under surveillance. The Director of Quarantine advised the other States that a certain number of the passengers had not been located. The Chairman of the Victorian Board of Health issued a circular to all local authorities and to every medical men in Victoria, setting out the facts and warning them to be on the look out for cases of small-pox.

The incident is of importance for the three following reasons: (1) A man with a well developed eruption travelled from Sydney to Melbourne and mixed freely for the course of three days with a large number of persons. (2) It is probable that some of the contacts among the steerage passengers have been infected. (3) The Quarantine Authority was not cognisant of the event until after the passengers had dispersed, and considerable difficulty has been experienced in following up the contacts.

Medical Matters in Parliament.

(*Continued from page* 455.)

NEW SOUTH WALES.

The Legislative Council on October 21, 1915, considered the message from the Legislative Assembly.

The Honourable J. D. FitzGerald proposed "that this Committee agrees with the Assembly's amendment upon the Council's amendment in the Bill."

The Hon. Sir Thomas Hughes said he was very anxious that this Bill should be made law at the earliest possible moment, but he did feel that the amendment introduced by the Assembly was difficult to understand. He had grave doubt as to whether the latter portion of the amendment relating to German or Austrian subjects was intelligible with the context. He pointed out one absurdity of the amendment. In the last two lines of the amendment the Assembly used the words "or if he be a graduate

of any German or Austrian University or Medical School, or a German or Austrian subject." He appreciated the patriotism of the honourable member who introduced that amendment, but it was conceivable that, as it was drafted, it might block a British subject who possessed a German or Austrian qualification. He was quite sure that was not the intention of the other House. The amendment did not say:—If he be possessed only of qualifications obtained in Germany or Austria, though he had no doubt that was what was intended. It said "if he be a graduate of any German or Austrian University or Medical School." He might be a graduate in science, in arts, or in any other faculty, and, under this clause, he would be disqualified for the practice of medicine. He wished to impress the Minister as to the existence of a real difficulty.

The Hon. J. D. FitzGerald said that he did appreciate the difficulty. It was apparent to everybody, but delay would result if the clause were not passed. The difficulty was not due to a misunderstanding, but to slovenly draftsmanship. He knew what the intention was, but it was clear that that intention had not been achieved by this amendment.

The Hon. N. J. Buzacott stated that, when he looked at the amendment for the first time that evening, it appeared to him that the intention was that graduates of German or Austrian Universities should be admitted to practice in the State. The clause in the Bill provided that certain persons and no others should be deemed to be legally qualified medical practitioners. A proviso followed that no person should be deemed to be a legally qualified medical practitioner or entitled to be registered as such unless the country in which he obtained his diploma recognized reciprocity of treatment. The amendment further provided that in the absence of such proof of reciprocity the person seeking admission would be permitted to practice if he passed the examination prescribed by the University of Sydney, "or if he was a graduate of any German or Austrian University or Medical School, or a German or Austrian subject." It was perfectly clear that this was not a bar; it was a qualification.

The Hon. A. W. Meeks said that it was absurd to adopt the amendment in this form. He urged Sir Thomas Hughes to move an amendment.

The Hon. Sir Thomas Hughes suggested that the Minister should move in the matter.

The Hon. J. D. FitzGerald said that he would not accept the responsibility of introducing an amendment. The legislation was initiated at the piteous request of Sir Thomas Hughes, who desired that his son should go to the front as a doctor. There was no doubt that the reading by the honourable member, Mr. Buzacott, was the correct reading of the amendment.

The Hon. F. Flowers said that the only trouble in regard to the amendment was that raised by Sir Thomas Hughes. He considered that the amendment clearly meant that no graduate of a German or Austrian University or Medical School should be allowed to practise the profession of medicine in New South Wales.

The Hon. J. Travers stated that he agreed with the position taken up by Mr. Buzacott. If the clause was passed as it was now worded, it could only bear the construction given to it by that member.

The Hon. Sir Thomas Hughes said that he would move "that after the word 'repealed' the figure '4' be inserted."

The Hon. J. D. FitzGerald pointed out that a proviso could not be inserted as a separate sub-clause.

The amendment was withdrawn by leave.

The Hon. J. Garland proposed the following amendment: "That the following words be omitted, 'if he be a graduate of any German or Austrian University or Medical School, or' with a view of inserting the words 'provided that he be not.'

The amendment was withdrawn by leave.

The Hon. L. F. Heydon thought that, in view of the circumstances as between the two Houses, they should keep as closely as possible to the words as they had come from the other House, merely making their intention clearer. He therefore moved, "That after the word 'Sydney' the following words be omitted, 'or if he be a graduate of any German or Austrian University or Medical School, or a German or Austrian subject,' with a view of inserting the words 'provided, further, that nothing in this section can entitle to registration a graduate of any German or Austrian University or Medical School only, or a German or Austrian subject.'"

The Hon. J. D. FitzGerald said that there was only one thing further upon which he would like the opinion of the Committee, and that was as to whether this amendment should be retrospective in its action.

The Hon. Sir Thomas Hughes said that the amendment should not be retrospective.

The amendment was then agreed to.

The resolution was reported and the report adopted.

The same evening the Bill was received in the Assembly from the Legislative Council, with the further amendment.

The House, however, immediately adjourned.

The Legislative Assembly, in Committee, on November 3, 1915, gave consideration to the further amendment of the Legislative Council. The Minister of Public Instruction, Mr. Arthur Griffith, moved "That the Committee agree to the Legislative Council's further amendment in the Bill."

He explained that there was no amendment in the matter, but merely an alteration in form, which was intended to clothe the patriotic sentiments of Dr. Arthur in correct English. The members of the Upper House held the view that the amendment, inserted at the instance of Dr. Arthur, meant nothing, or that, if it meant anything, it meant that medical men who had obtained their qualifications in Germany or Austria would be allowed to practise in this State. The purpose of the Council's amendment was quite clear. They desired to debar from practice in this country Germans and Austrians who had obtained degrees in their own countries. The Council had made one alteration. The amendment, as originally drafted, would have provided that an Australian or an Englishman, who had gone abroad to acquire some additional qualification, would have been debarred from practice in New South Wales. This was not desired, and the difficulty was overcome by the insertion of the word "only." There was now no ambiguity.

Mr. Waddell entirely agreed with the proposed change. He hoped another Government would take note of what the House had done. They recognized how necessary it was to stop the practice that had been adopted by another Government of employing German doctors for the examination of men going to the war. He wished to ask the Minister how this provision would operate in the case of a young German doctor who had been naturalized in America, had obtained his degree and had come to Australia?

Mr. J. C. L. Fitzpatrick wished to point out to the Minister that, under a recent law adopted by the German Government, a German never relinquished his nationality. Those Germans and Austrian who had been naturalized in America were just as much under the German heel as they would be if they came to Australia and did not become naturalized.

Mr. McGowen said that it was well known that he did not go as far as the Minister in the provisions of this Bill. He did not believe in these proposals of reciprocity when such a serious matter as public health was involved. This proposal would prevent Germans and Austrians from coming to this State in order to save human life which the medical men in New South Wales might not be able to save. Although he was not going to vote against the Bill, he thought that some day they would retrace their steps.

Mr. Levy agreed with the amendment of the Council, because it made unambiguous what was the intention of the House. It was not a bad thing that Bills should leave the Chamber in such a form that people of ordinary intelligence could understand what they meant, without having to go to a court of law and indulge in litigation.

The question was then resolved in the affirmative.

The resolution was reported and the House counted.

The following motions by Mr. Arthur Griffith were agreed to:—

"That the report be now adopted."

"That a message be forwarded to the Legislative Council, intimating that the Legislative Assembly, having had under consideration the Legislative Council's message agreeing to the Assembly's amendment upon

the Council's amendment, but proposing to further amend such amendment, agrees to the Council's further amendment."

The Bill, as amended, awaits now the Royal Assent.

Correspondence.

THE WHITE AUSTRALIA POLICY.

Sir,—Dr. Pern, in a letter published in the Melbourne *Age*, October 2, 1915, again affirms his faith in the white settlement of Northern Australia. For the furtherance of that object he prescribes railways, cotton-growing, and a scheme.

The scheme is a simple one. It is proposed that "our poor relations" should be distributed over the Territory, on 200-acre blocks. They are to be maintained at the Government expense till such times as they can grow enough cotton to support themselves. Men with families are to be preferred. The bigger the family the better, "as the children would pick the cotton pending the production of a perfect cotton machine, which is being evolved in America." As a further inducement, it is stated "that a warm climate offers many advantages; clothing, boots and fuel become an almost negligible quantity to the settler and his family." "Stock require shelter only from the sun."

So the children are to run about in the sun, with little or nothing on, picking cotton, while the cattle lie contentedly chewing the cud under shelter-sheds, and Dr. Pern and his family live at Port Fairy!

Although there is no need to discuss the scheme, the fact remains that after the mass of evidence which has been placed before Dr. Pern in the pages of *The Medical Journal of Australia* he has undertaken to confirm the Australian white man in his prejudices. His attitude reminds one of an instance when, after spending several hours trying to prove to a prominent politician the futility of the white Australia policy, his only reply was, "Granting all you say to be true, I would not have a d—— Chinaman left in the country had I my way. How are you going to get over a prejudice like that?" Certainly, a man's prejudices demand consideration, and with a politician they are the greater part of his stock-in-trade; but a medical man, with his training, should be willing to accept evidence and keep his mind open to conviction.

In his last letter to *The Medical Journal of Australia*, Dr. Pern failed to appreciate the difference between a black and a white man working in the sun and in the shade. He asserts that, as the mines in Johannesburg were successfully worked by white men, so white men could effectively exploit the tropics of Australia. He sees confirmation in the development of the sugar industry in Queensland, and concludes that the black man in the Panama was a matter of economy and not a question of physics and physiology.

Man in the sun. Will not Dr. Pern admit that living organisms, everywhere, including men, are pigmented to meet the demands of their light environment, or else they must be otherwise protected or suffer, and that, according to the character and density of the deposit, the pigment will not only control the passage of the colour rays, but also the transmission of the infra-red and ultra-violet radiations? The rays that pass through the epidermis into the deeper tissues are ultimately transformed into heat. They readily pass through bone and into the skull. The black man not only has his pigmented skin, but there is also a further deposit of pigment in the meninges for the greater security of his brain.

Man in the shade. There is no difference in the process by which a white and a black man dispose of their body heat. The pigment embedded in the cells of the *rete malpighii* can neither effect the conduction of heat, nor does it radiate infra-red energy.

Man can be described as a human, porous water-bottle, and loses his body heat after the manner of other porous water-bottles, by conduction and the dissipation of the fluid contents. There will be no radiation of infra-red energy from a moist surface. Any situation that will interfere with the loss of moisture from the cooling body, as high wet bulb pressures, whether due to atmospheric conditions or the wearing of clothes, must cause heat to accumulate in the tissues and put a tax on the energies of the individual. When in the shade, both black and white men can remove their clothes with equal advantages, whether enjoying a Turkish bath, working in the tunnel of a mine, or in the stokehole of a ship.

It should now be obvious to Dr. Pern that working under cover, as in the mines of Johannesburg, is one of physical endurance only, while in the sun, whether in Africa or the tropics of Australia, it is a question of sun pressure, in which pigment gives the black man the advantage.

The use of clothes. The garments of Western civilization enclose a column of moist air, that retards the loss of heat by evaporation, and so affords the greater protection against cold. The garments of Eastern civilization, where the climate demands it, permit of the freest circulation of air currents, so readily allowing the loss of heat by evaporation. Official reports of Northern Australia proudly exhibit the aboriginal, not only adopting the mechanical arts of civilization, but clothed in Western garb, even to the extent of a collar and a tie. The Australian white man, in his extremity in the trenches at Gallipoli, reduced his clothing to a loin-cloth. Alas, poor aborigine!

The sugar industry. If the removal of the Kanaka was to fit Queensland "to be the home of a working white race" then the effort can hardly be claimed to have succeeded. The producers, encouraged by the bounty, have increased in number, but the worker, tempted by high wages, still comes from the south, and returns again to recuperate, and, too often, to dissipate, at the close of the season, which ends before the summer begins.

The Panama. Dr. Pern at least admits that the black man in the Panama was of economic value, but denies it was in virtue of his pigment. The American white man had first been tried and failed, and even the skilled worker was seduced to remain for two years or more by the distribution of D.S.O. medals.

Before closing this discussion on pigment, one matter of interest may be referred to, *i.e.*, the ætiology of sunstroke and heat stroke. These are usually given in text-books on medicine as synonymous terms.

Heat stroke, as previously stated, is due to any physical conditions causing the accumulation of heat in the tissues of the body, and can occur in both black and white man alike.

Sun stroke is due to the direct invasion of the brain of, at least, red light energy, and can only occur in individuals whose tissues are not sufficiently protected by pigment as the black man.

Yours, etc.,

M.B. (Melb.)

October 30, 1915.

THE CASE OF CAPTAIN SCHLINK.

Sir,—I protest against the virtual pro-German use to which the columns of our *Journal* are being put in connexion with the Liverpool Camp Enquiry and the Schlink agitation. Dr. Schlink's, or any other German's loyalty, has nothing to do with the merits of the case. I don't even know him, and therefore can and do speak without prejudice. He may be loyal or not. I certainly do not know, nor do you or anyone else. People merely think or say they think.

There is no test by which a loyal German can be differentiated from a disloyal one, and, therefore, the matter of loyalty is absolutely irrelevant and a red herring. The point is that such positions should never be sought, accepted or offered to any persons of German or enemy descent; in fact, such persons should not be at liberty for such purposes—a self-evident proposition, which only a so-called "Britisher" would question or agitate against, little less reverse. The foreign menace is bad enough as it is. Charity generally begins abroad in the British Empire, and you cannot turn anywhere without being faced by the alien and his goods—a factor that is going to cause untold trouble unless we put a stop to it, if it is not already too late. All genuine and sane Britishers will re-echo Justice Rich's eminently sensible but extremely mild dictum that the appointment of a person of German name and parentage to a position in connexion with the defence of the country was an act of impropriety and inexpediency. It's a very great

pity some so-called "Britishers" don't try and help their country by insisting on the internment (with a view to ultimate deportation and exclusion) of all Germans or enemy subjects, naturalized or not, and their children (seeing that the majority of Germans at least are dangerous and treacherous plotters), instead of helping the enemy by their indifference to and encouragement of, the license permitted German residents. The innocent, if there be such, must suffer with the guilty, for the safety of the British Empire is of infinitely more importance than all the Germans in creation, at least to Britishers. The substitution of a little German sense and thoroughness for our faddy and nauseating sentimentalism would be eminently welcome. Whatever the motive behind this wretched agitation be, whether pro-Germanism or allowing one's heart to run away with one's head, the fact remains that the impression and result are very unpleasant and dangerous. We are just about fed up with the general and idiotic or sinister solicitude for Germans which involves a gamble with the Empire's safety and the willingness to take terrible, unnecessary risks—an attitude which, to say the least, is highly suspicious, for all those who are not unreservedly against Germans are, it must be considered, for them, and treated accordingly. Certainly, the above would be the result, which is the important thing, whatever the intention. As it is this miserable attitude is practically adopted by the German governments and conspirators, "British" and German, that at present control the destinies of this country. As for the "patriots" who, foolishly or knaveishly, identify and have identified themselves with pro-German agitations the less said the better.

For Dr. Schlink, personally, I am naturally sorry, if he has suffered an injustice and loss, but I do feel that he has at least partly himself to blame for that, for allowing himself to be placed or forced, without protest, on grounds of public policy (*Journal*, p. 429), into an untenable position. As for the Defence Department, or rather, the Federal Government, I am not surprised at anything therefrom.

Yours, etc.,

G. S. THOMPSON.

November 3, 1915.

MEDICAL PRACTICE AND THE WAR.

Sir,—Dr. Woolnough suggests to me that if no one wishes to support him in his protest against the suggestion to invite "certain" medical practitioners to assist in looking after the practices of members at the front, that it would be thought he was in a minority.

I therefore write to say that it is more probable the suggestion is so preposterous that no member thought it worthy of notice. One can imagine the kind of help the profession would get from such gentry.

I am informed, and from past experience think it likely, that the only failure of the Common Agreement is from want of firmness on the part of some members in enforcing its provisions.

Yours, etc.,

ARTHUR PALMER.

Elizabeth Bay,
November 2, 1915.

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We have been asked by the Director of the Australian Institute of Tropical Medicine, Townsville, to attempt to obtain the following issues of the *British Medical Journal*, in order that the series in the Library of the Institute may be completed:—

1895.—Vol. II., November 16.
1897.—Vol. I., February 6.
1899.—Vol. II., July 29.
1900.—Vol. I. April 14, 21, 28, and June 30.
1900.—Vol. II., July 14, 28, August 4 and 25, October 20, 27, November 3, and December 22.
1901.—March 2, and from April to December.
1902.—Vol. I., All January Numbers.
1902.—Vol. II., August 23.
1906.—Vol. 11., December 29.
1907.—Vol. I., February 23.
1908.—May 9, and from May 16 to December.

We should be greatly indebted to members who have spare copies of the Journal, or the complete volume, if they would present them to the Institute.

THE NAVAL COURT MARTIAL.

The following letter has been received by Dr. J. G. Skeet from the Naval Department:—

Sir,—

With reference to the sentence imposed on you by Court Martial on board H.M.A.S. *Penguin* at Sydney on October 28, 1915, I am directed to inform you that, having considered the evidence, the Naval Board has decided to mitigate the sentence to dismissal from His Majesty's Service.

I have the honour to be,
Sir,
Your obedient servant,
(Sgd.) GEORGE N. MACANDIE,
Naval Secretary.

—o—

Personal.

It is with great regret that we have to record the death of Dr. W. H. Kaye on November 3, 1915, from pneumonia. Dr. Kaye has been looking after Dr. Dickey's practice at Brewarrina during the latter's absence in England on military service. Dr. Kaye has been a member of the medical profession for eleven years, and has been in Australia since the winter of 1914.

The death of Dr. George Dickinson, of Moonee Ponds, Victoria, which occurred on November 5, 1915, has robbed the profession and the community of a picturesque and popular member. Dr. Dickinson was 61 years of age, and, during the 30 years of his practice, he had endeared himself with a large number of patients. It is stated that the nature of his fatal illness was cerebral hæmorrhage.

According to an account published in the *Sydney Morning Herald* of November 3, 1915, Dr. Elsie Dalyell, of Sydney, who has been the holder of a Beit Fellowship, and has been prosecuting research work at the Lister Institute of Preventive Medicine, was accepted for military medical services by the Serbian Government. A unit of 46 persons, including two doctors in addition to Dr. Dalyell, undertook the work in the Royal Hospital, Skopje, in Serbia. This small staff had charge of 500 patients, many of whom were suffering from typhus fever. It is stated that they succeeded in coping with the epidemic, and as the number of patients became reduced, Dr. Dalyell lost first one, and then the second of her colleagues.

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Medical Appointments.

Dr. Raymond Balls has been appointed Government Medical Officer at Muswellbrook, New South Wales, in place of Dr. C. N. Handcock (resigned).

Dr. Stewart Arthur Smith has been appointed a Member of the Board of Visitors to the Licensed House for the Insane at Cook's River, in lieu of Dr. Davidson, whose resignation has been duly accepted.

Dr. D. A. Campbell has been appointed Acting Medical Superintendent of the Hospital for the Insane, Mont Park, Victoria, during the absence on leave of Dr. J. T. Hollow.

Dr. Gladys Vera Stephen has resigned her appointment as Medical Officer of the Department of Education, New South Wales. The resignation has been accepted.

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Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xiii.

Commonwealth Military Forces, Principal Medical Officer.
Queen's Memorial Infectious Diseases Hospital, Fairfield, Senior Assistant Medical Officer.
Wondai District Hospital, Queensland, Medical Officer.

Proceedings of the Australasian Medical Boards.

VICTORIA.

The following have been registered under the provisions of the "Medical Act, 1890," and the "Medical Act, 1906," as duly qualified medical practitioners:—

William Henry Collins, Ivanhoe, M.B. et Ch.B., Melb., 1914.

George Stephenson Elliott, "Gladwood," Combermere Street, Essendon, M.B. et Ch.B., Melb., 1915.

Howard Maxwell James, Warburton, M.B. et Ch.B., Melb., 1915.

Robert Percy Young, Scott Street, Cavendish, M.B. et Ch.B., Melb., 1914.

John Forrest Gardner, St. Peter's, South Australia, M.B. et Ch.B., Adelaide, 1914.

SOUTH AUSTRALIA.

The following have been registered under the provisions of the "Medical Act, 1880," as duly qualified medical practitioners:—

Ashby, Ivan Edward, M.B., B.S., Adel., 1915.
Birch, John Bright, M.B., B.S., Adel., 1915.
Guymer, Arthur Howes, M.B., B.S., Adel., 1915.
Jose, Ivan Bede, M.B., B.S., Adel., 1915.
Kenihan, Raphael Leo, M.B., B.S., Adel., 1915.
Love, John Alexander, M.B., B.S., Adel., 1915.
Sweeney, James Gladstone, M.B., B.S., Adel., 1915.
Wien Smith, Geoffrey, M.B., B.S., Adel., 1915.
Wyllie, Hugh Alexander, M.B., B.S., Adel., 1915.
Bishop, Albert Edward Kemp, M.B., B.S., Melb., 1904.
Barlow, Douglas Lewis, M.B., B.S., Adel., 1915.
Kollosche, Harold Frank, M.B., B.S., Adel., 1915.
Phillips, William James Ellery, M.B., B.S., Adel., 1915.
Rice, Patrick William, M.B., B.S., Adel., 1915.
Halloran, Henry Marco James, M.B., B.S., Melb., 1915.

Books Received.

ENCYCLOPÆDIA MEDICA. Second Edition, under the General Editorship of J. W. Ballantyne, M.D., C.M., F.R.C.P.E., in 15 Volumes; Vol. I., Abattoirs to Asphyxia, 1915. Edinburgh & London: W. Green & Son, Ltd.; Sydney and Wellington (Sole Agents for Australasia): Butterworth & Company, Ltd.; Calcutta (Sole Agents for India): Butterworth & Company Ltd.; Crown Quarto, pp. 744. Price, per volume, £1.

THE NEW PSYCHIATRY, BEING THE MORISON LECTURES DELIVERED AT THE ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH IN MARCH, 1915, by W. H. B. Stoddart, M.D., F.R.C.P., 1915. London: Baillière, Tindall & Cox; Demi 8vo., pp. 66. Price, 3s. 6d.

A PRACTICAL MANUAL OF BANDAGING, by Duncan C. L. Fitzwilliams, Capt. R.A.M.C.T., 1915. London: Baillière, Tindall & Cox; Demi 8vo., pp. 92. Price, 3s. 6d.

ALCOHOL AND THE HUMAN BODY, AN INTRODUCTION TO THE STUDY OF THE SUBJECT, AND A CONTRIBUTION TO NATIONAL HEALTH, by Sir Victor Horsley, F.R.S., F.R.C.S., M.B., B.S., Hon. M. D. Halle, etc., Major R.A.M.C., and Mary D. Sturge, M.D., with a Chapter by Arthur Newsholme, C.B., M.D., F.R.C.P., D.P.H., and a Chapter Written in Collaboration with Sir Leonard Rogers, K.C.I.E., Lt.-Col. I.M.S., M.D., F.R.C.S., etc.; Fifth Edition, enlarged, 1915. London: Macmillan & Co., Crown 8vo., with 339 pp. Price, 1s.

THE MEDICAL CLINICS OF CHICAGO, Clinic of Dr. Charles I. Mix. Mercy Hospital, July, 1915; Vol. I., No. 1, 1915. Philadelphia and London: W. B. Saunders Company. Melbourne: James Little. Published bi-monthly; demi. 8vo., with 208 pp. Subscription 35s. in paper, and 50s. in cloth, per annum.

THE CLINICS OF JOHN B. MURPHY, M.D., at Mercy Hospital, Chicago, June, 1915. Philadelphia and London: W. B. Saunders Company. Demi. 8vo., with 577 pp. Price 35s. in paper, and 50s. in cloth, per annum.

PYELOGRAPHY (Pyelo-Ureterography). A STUDY OF THE NORMAL AND PATHOLOGIC ANATOMY OF THE RENAL PELVIS AND URETER, by William F. Brasch, M.D., 1915. Philadelphia and London: W. B. Saunders Company. Melbourne: James Little; 8vo., with 323 pp., and 296 pyelograms. Price, £1 2s. 6d.

Diary for the Month.

Nov. 16.—N.S.W. Branch, B.M.A., Executive and Finance Committee, Ethics Committee.
Nov. 17.—Western Australian Branch, B.M.A., Monthly.
Nov. 19.—Queensland Branch, B.M.A., Council.
Nov. 24.—Victorian Branch, B.M.A., Council.
Nov. 24.—Victoria Branch, B.M.A., Ballot Papers issued for Election of Officers.
Nov. 25.—South Australian Branch, B.M.A., Monthly.
Nov. 26.—Melbourne Hospital Clinical Society.
Nov. 26.—N.S.W Branch, B.M.A., Ordinary.
Nov. 30.—Victorian Branch, B.M.A., Eye and Ear Section.
Nov. 30.—N.S.W. Branch, B.M.A., Organization and Science Committee, Medical Politics Committee.
Dec. 1.—Victorian Branch, B.M.A., Annual General Meeting.
Dec. 8.—South Sydney Medical Association, N.S.W.
Dec. 8.—Melbourne Pediatric Society.
Dec. 9.—Victorian Branch, B.M.A., Council.
Dec. 10.—Queensland Branch, B.M.A., Annual Meeting.

Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
QUEENSLAND. (Hon. Sec. B.M.A. Building, Adelaide Street, Brisbane).	Brisbane United F.S. Institute.
WESTERN AUSTRALIA. (Hon. Sec. 230 St. George's Terrace, Perth).	Swan District Medical Officer. All Contract Practice Appointments in W.A
NEW SOUTH WALES. (Hon. Sec. 30-34 Elizabeth Street, Sydney).	Arncliffe F.S. Lodges. Australian Natives Association. Balmain United F.S. Dispensary. Burwood District F.S. Institute. Canterbury United F.S. Dispensary. Goulburn F.S. Association. Leichhardt and Petersham Dispensary. M.U. Oddfellows Med. Inst., Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. Mullumbimby District Friendly Societies. N.S.W. Ambulance Association and Transport Brigade. N. Sydney United F.S. People's Prudential Benefit Society. Phœnix Mutual Provident Society. F.S. Lodges at Casino. F.S. Lodges at Litngow. F.S. Lodges at Mudgee, (except A.H.C.G.) F.S. Lodges at Orange. F.S. Lodges at Parramatta, Penrith, and Auburn. F.S. Lodges at Wellington. Newcastle Collieries— Killingworth. Seaham Nos. 1 and 2. West Wallsend.
SOUTH AUSTRALIA. (Hon. Sec. 3 North Terrace, Adelaide).	The F.S. Medical Assoc. Incorp., Adelaide.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.